THE SCHOOL REVIEW
A JOURNAL OF SECONDARY EDUCATION

VOLUME XXV MARCH 1917 NUMBER 3

THE WYOMING PLAN OF MILITARY TRAINING FOR THE SCHOOLS

CAPTAIN E. Z. STEEVER, U.S.A.

I shall first present a short historical outline of the Wyoming plan. In 1911 we introduced military training into the public schools of Cheyenne, Wyoming. At the time there was little idea of preparedness in the country and we immediately met with every kind of opposition: opposition on the part of parents who did not want their boys to be soldiers; opposition on the part of women's clubs; opposition on the part of labor unions, who feared a militarism which would be hostile to their interests; opposition on the part of school-teachers; and, most important of all, opposition on the part of the boys, who had their football, basket-ball, and track games, but had no notion whatsoever of national-defense games.

This opposition we answered in four ways:

To the schoolmaster we said: "We are going to develop fine boys for you. We are going to put a little stiffening into the American boy, make him more manly, and make him better material for you to work on educationally."

To the women's clubs, that is, to the mothers of the boys, we said: "We have a moral ideal in this work; we are going to encourage non-smoking and clean-thinking." And we did it.

To the labor unions we said: "We are working for national defense, and we promise you that this organization will have nothing

whatever to do with a state or a municipal police force. We are working solely for national defense, and we shall go no farther than that. This will be strictly American, and we shall have no caste idea in this program.

And so my work has been in the line of leadership as opposed to the caste idea. For instance, I am working under the Chicago school board now. In Chicago we have no officers; only leaders. We have no captains, colonels, and brigadier-generals among the boys. Instead, we have platoon, company, battalion, and perhaps regimental leaders, in the same way that on any railroad running into this city there is a chief train-dispatcher and an assistant train-dispatcher. We handle the system entirely without any idea of caste.

To the boys (and, after all, it is most important to make good with Mr. Boy; in the last analysis it is the boy's side of the work that really counts) we say: "You have your football, basket-ball, baseball, and track games. Now, Mr. Boy, why not go ahead with the national-defense game?" And we have given the boys fascinating national-defense games.

Our military instruction has been adapted to the game idea. We have taken the old lockstep, routine work out of military instruction, and we have adapted it to the game. The boy has definite contests to look forward to in all the phases of his instruction. It is high school against high school; we get all the dash and all the efficiency of the football team in our national-defense games. That is a fundamental principle of the Wyoming idea.

Starting with a very few boys in Cheyenne, in the course of a few years we developed the principles of what is now known as the Wyoming plan of military instruction in the secondary schools. Wyoming was, perhaps, the most difficult of all places in which to inaugurate that training. The high-school population is extremely small. The cities are very far apart, railroad communication is not the best. In order to make possible inter-high-school competition we had a most difficult problem to solve. I have not been in Wyoming for many months, and I do not know from first-hand information how the work is progressing. During these two years the boys have had no coach, no director, no one to look out for them; the

marvel is that the work has continued without anyone to instruct the boys. How in the world would you carry on Latin, or Greek, or history without a teacher? All the schools employ physical directors to carry along their athletic games; but the boys of Wyoming have managed of themselves to keep military training alive. That is indeed a wonderful test for the system.

I left the Wyoming schools and went to Washington a year ago. There we introduced some of the Wyoming features into the Washington high-school cadet organization, a body of some 27 cadet companies. Washington, D.C., has a high-school cadet organization thirty-five years old. It has existed continuously for thirty-five years. Why? Because it has been on the competitive principle. Heretofore there has been one big competition—the competitive drill at the end of every year. It is the competitive feature that has kept that organization on its feet, and has made it great. I believe that the Washington high schools have furnished more officers to the army, the navy, and the marine corps than any institution outside of the national academies.

We prescribe for the boys uniforms of cadet gray. We want our boys to take pride in their clothing, we desire to inculcate in them habits of neatness and cleanliness. Now a spot or two on dirt-colored khaki makes very little difference, but when uniforms are clean-looking cadet gray, inspected at every drill, it is quite easy to insist that each boy keep his uniform in fine condition, free from spots, grease, and dirt. Cadet gray is becoming; khaki and olive drab are not; the cadet uniform has never been departed from at West Point in favor of the army green or olive drab. A father and mother take greater pride in the lad if they see him coming home in an attractive-looking uniform. Moreover, cadet gray, which blends very well with the landscape, is an admirable field uniform as well as an attractive dress uniform. It is a great combination. Blue is a good dress uniform, but it soils easily and is not well suited for field work. The complete uniform consists of cap, blouse, and pants. Later, the boys will have to provide themselves with gaiters for field work.

In spite of the fact that the Chicago boy (and he is the kind of a boy I was—a poor boy) has to spend fifteen dollars for his uniform,

we anticipate that from 30 to 70 per cent of the boys in the different high schools are going to join of their own volition. There are 15,000 boys, roughly speaking, in the Chicago high schools. There are 21 high schools. You see the colossal job we have there. And yet, if uniforms are furnished free, I would promise 10,000 boys or be willing to resign my commission on the failure of my prediction. These boys would be from fourteen to nineteen years of age.

We work upon the following basis: My practical experience is opposed to making the military instruction in the high schools compulsory. Indeed, compulsion is not necessary. We can win Mr. Boy with our delightful national-defense games. I believe in making enlistment in our work elective; a boy can elect this class, or not, just as he sees fit; but once he has elected it for the year he must finish the work as in any elective class. Many subjects in the high-school curriculum are now elective, such as Latin, chemistry, history; we add a military course, attempting to make it as appealing as an attractive game. Thus we take into account boy psychology. Indeed, I believe that if uniforms were furnished free we could easily enroll 90 per cent of the boys. What then seems to be the importance of bothering with the remaining 10 per cent, especially as we might load our companies with spirit of the wrong sort. We desire to avoid the old lockstep spirit, and to substitute the spirit of competition.

Austin High School, Chicago, will have a very high proportion of boys going into the work. We have carefully explained to them that a fifteen-dollar uniform is indispensable. That restriction is a very great pity. A single concrete instance will explain why. Several years ago, in Wyoming, there was a boy who did not come in to take the cadet work, and yet I saw him in the gallery every day when we had drill. He was a fine lad: I knew the type of boy. One day I asked him, "Son, why don't you join the cadet corps?" He shuffled his feet and, boy like, said he did not want to. I pressed him further, and this is what he said: "Well, lieutenant, I have saved up my newspaper-route money to buy a uniform, but my mother is a washerwoman you know. She is sick and she has to have that money; so I can't join the cadets." Of course we were able to provide that boy with a uniform.

It is pretty hard for me to go to these Chicago boys and say, "Here, have you got fifteen dollars worth of patriotism?" Because fifteen dollars to the Chicago schoolboy is as big as the whole continent of America is to you.

Next fall we shall consider the question of training the girls. I feel satisfied that our nation is non-militaristic; that we have no desire for conquest of other people's territory. Hence, if war comes, we are going to be on the defensive. That implies that the people who attack us are going to be on the offensive, and that means that our country is going to be invaded. Now, invasion will mean a great movement of population from the seaboard to the central portion of the United States. Various sections of Europe have been invaded during the last two or three years. You, of course, have seen photographs of the refugees. There the women, the young girls, the children, and the men, all went helter-skelter, go-as-you-please, seeking safety and shelter. There was an utter lack of organization. Now, I believe that our high-school girls ought to be taught organization. They ought to be taught squads right and squads left; camp sanitation; how to organize large bodies of women and children, so that in the event of war in this country women can manage women and young girls. American women have a natural executive ability. They can handle masses of women better than the men. I think the men have failed in Europe in providing for the refugees, especially the young women and girls. I am opposed to giving our girls rifles and teaching them how to shoot. If the manhood of this country cannot defend its womanhood, we are in a very, very bad way. But I do see the necessity of this kind of training for girls—organization of units along military lines, camping, camp sanitation. Our girls should be taught the laws of war so that there would be no sniping on the part of the women of a community in the event of invasion. That brings a terrible penalty according to the laws of war.

I want to tell you of the interest on the part of "Mr. Boy" throughout the Middle West. He wants this work, and he wants it very badly. For instance, in Ottawa, Illinois, there are over a hundred boys who come three miles every week to their drill.

They start at 7:30 in the morning, before school. That means that the boys have to get up rather early to be able to eat their breakfasts and reach school on time. They have no instructor except a boy who had two weeks at Culver, last year, in the high-school camp; and yet this lad, because of his qualities of leadership and natural-born ability, has held that outfit together and is instructing them. It is a pity they have not a trained instructor and a shame that they have to buy their own uniforms.

I believe that the Wyoming plan has improved discipline in the schools, and has cut down the proportion of juvenile cases in the courts. It has tended to develop the boys physically, to develop them mentally, and to develop their character. In the troop-leadership game we have something very unusual. Here is a game in which boys are called upon to make decisions, and to make them promptly. It is an incomparable means of development to give a boy a problem in which he has to make promptly a decision which in his own mind is very important. Indeed, we think that our boys develop a rather true sense of manhood when we give them a man's game to play. War is a man's game.

It has been said that any attempted military discipline tends to destroy initiative, and that taking any kind of an order from those above him tends to make the boy receptive. That point of view is based upon an ignorance of our Wyoming plan. It rests on the idea that all there is in military training is squads right and squads left, the manual of arms, and the marching movements. We have, in addition thereto, the initiative developer in our map maneuver or troop-leadership game. In this the boys are given certain definite missions to perform; the side which best fulfils its mission is the winner. We are teaching a boy a great civic, as well as a great military, lesson when we teach him to remember his mission. If I, as a boy and as a young man at college, had always remembered my mission, I would be a much better man today.

Then, in a solution of these problems, initiative, resourcefulness, practical ability, are the great, main factors. So far from killing a boy's initiative, this Wyoming plan develops it to the highest degree.

PREPARING WHILE WE WAIT

H. L. DURBOROW
Culver, Indiana

With sureness outmeasured only by slowness, our democracy is awaking to the need of military preparedness. A good-natured, lumbering, unprotected giant, composed of a hundred million human parts, is sitting up, rubbing his eyes, and looking around. It is slow work co-ordinating a hundred million brains of graybeards and sucklings into a result-producing organism. Thus far even the graybeards have been so much at variance with one another in their ideas of protection that little save editorial fusillades and oratorical bombardments has arisen to make the country secure from attack.

In considering the matter broadly, it must be honestly admitted that any plan for increasing the army in times of peace, that depends upon voluntary enlistment, with anything like the present inducement for service, is doomed to fail. Military experts affirm this and the evidence of the past confirms it. Diametrically opposed to this is the plan for increasing the army by universal service. But America has developed such democratic hyper-sensitiveness that it is a question if conscription could ever meet with sufficient encouragement, except in war time, to become a popular institution.

Between these extremes manifold plans for building up a national reserve have been conceived, suggested, and relegated into pigeonholes of respectable desuetude. One, however, that has daily been receiving more and more consideration is the introduction of military training into our public schools. Professors with fountain pens for weapons of defense have arrayed arguments against this, ranging from the assertion that "military training destroys initiative," to the statement that "it makes boys hollow-chested." Having been for a number of years intimately connected with the training of boys of high-school age by the military

system, I can list with certainty and brevity the points in favor of the plan.

First, from its national aspect, it places at once almost half a million young men under military training. There are today in the high schools of the United States 441,000 boys between the ages of fourteen and twenty receiving academic instruction. About 71,000 each year are sent out prepared for college or business life. With proportionately small additional cost, they could be also prepared to serve their country in case of war with immediate efficiency instead of with inefficiency.

In the second place, military drill conducted in high schools would have the value of being given to students at the period of life when they not only show most interest in things active and challenging, but absorb most readily all forms of instruction. One has only to note the results achieved by Captain E. Z. Steever, U.S.A., in the state of Wyoming, where 90 per cent of the high-school students voluntarily took military training under his leadership, to appreciate the truth of this statement.

In the third place, military training develops a boy physically. Since the majority of students in the modern high school take athletics from the side lines, physical training tends to become a luxury reserved for the few already strong. Military training means physical training for all. And there is no end to the variety. A boy cannot remain subnormal in physique who takes his turn at wall-scaling, setting-up exercises, Butts manual, digging trenches, and participating in skirmish runs.

Again, the average American boy is in tragic need of a discipline which will teach him regard for constituted authority and courteous recognition of those who are his superiors in vision and efficiency. Proverbial American freedom is too large a clover field for an immature mind. Military training has a superb educational value because it presupposes a discipline that fulfils just this need.

Further, military training inculcates the virtues of promptness, alertness, initiative, and self-reliance. To say that it destroys initiative is not confirmed by the facts. No article of a soldier's equipment is so valuable to him as a "good head." An army

officer of several campaigns said to me not long ago: "The greatest nuisance in the service is the man who won't use his brain as the occasion requires, but who insists on following orders blindly." Success in modern warfare requires pronounced individual initiative of the man in the trench as well as of the scout in the aeroplane. Closely related to initiative are alertness and self-reliance, qualities so long connected with the soldier that they have become venerable through association.

Another point in favor of establishing military training in schools is that it develops moral qualities of responsibility, cooperation, service, and good citizenship. Few forces put an urge into a boy as readily as a sense of responsibility. Under military training he feels it from the start. Why should anyone pronounce it undesirable to inject an idea of responsibility into the soul of the typical high-school boy? In an address made to the cadets of a certain military academy during his first campaign, President Wilson spoke of the uniform as the symbol of service. "We hear of mothers," he said, "hanging the swords and muskets of their sons on the wall so that they may constantly see them. We do not hear of anyone hanging as ornaments of a household any of the symbols of peace, such as a ledger, a yardstick, a pick, or a shovel. The reason for this is that a man supports himself with these implements, but he is doing a service for someone else when he is using the sword or the rifle in battle: and modern people seem to hold a service they do to help themselves below the things they do to help others." Good citizenship is born of responsibility plus service. It therefore is a by-product of military training that is well administered.

A final point that might be listed in favor of introducing military training into public schools is its adaptability to graduation of instruction in high school and college in the same way that academic work is graded from elementary lessons to courses of an advanced and specialized nature. It might readily begin in the Boy Scout companies now so popular with youngsters in the grades. Then if fundamental military tactics were taught in high schools, such for example as squad and company drill in close and extended order, manual of arms, target practice, scouting, signaling, first

aid, wall-scaling, camp-cooking and the like, the colleges could replace their military kindergartens with specialized military training compatible with the academic work of their curricula. This would include artillery drill, map-making, range-finding, target designation, bridge-building, concrete construction, aviation, field maneuvers, and tactical problems of a more complex nature. College students would enter work of this sort with the same zest they manifest in taking up any study in a new and advanced field. A part of the present unpopularity of military drill in colleges is due to its "tin" nature. A university student likes to feel that he is through with elementary and juvenile things. His interest is in doing a man's work.

When it comes to devising ways and means of training high-school students, difficulties naturally arise. But, of course, they are not insurmountable. It took one man just eighteen months to put Wyoming high schools on the military map. Captain Steever began teaching military drill in the Wyoming schools at Cheyenne by developing healthy competition in wall-scaling between squads of boys, extending it later to meets between different schools of the state. A Captain Steever in each state would solve the problem without bothering anybody else, but as yet there are few leaders of just his type.

Recently, however, the War Department has given Captain Steever the opportunity of establishing his system in city high schools of the Middle West which desire to introduce military training. The Chicago schools are to be the chief field of operation, with the Culver Military Academy as the headquarters laboratory. Four lieutenants and sixteen noncommissioned officers have been appointed to assist Captain Steever. Various cities and towns in the district will receive details from this staff, and will co-operate in the extension work.

Aside from army officers detailed by the War Department to schools and colleges, the honor military schools of the country could furnish an extensive corps of graduates able to assist in training high-school boys. The honor schools are those designated by the General Staff as furnishing their students the most efficient military training. Those thus chosen from the essentially military

academies of the country in 1916 were: Culver Military Academy, Culver, Indiana; Kemper Military Academy, Boonville, Missouri; Kentucky Military Institute, Lyndon, Kentucky; New Mexico Military Institute, Roswell, New Mexico; New York Military Academy, Cornwall-on-Hudson, New York; Shattuck School, Faribault, Minnesota; St. John's Military Academy, Delafield, Wisconsin; St. John's School, Manlius, New York; College of St. Thomas, St. Paul, Minnesota; Wentworth Military Academy, Lexington, Missouri; Western Military Academy, Alton, Illinois.

One of these above mentioned has already made an effort within the past two years to arouse interest in military training among the high-school students of the central states by conducting two annual camps of military instruction for boys appointed from high schools of the Middle West. Altogether over seven hundred students have attended at nominal cost.

These young men have been held under strict military discipline during the encampments, quartered in tents, and given a course of intensive instruction covering foot movements, manual of arms, squad, company, and battalion drills, outpost and guard duty, first aid, sanitation, signaling, artillery drill, tent-pitching, trench-digging, and the like. The drill-masters have been chosen in every instance from the cadet privates of the academy.

The high-school students have taken to the work with excellent spirit, handling their guns within a short time like seasoned volunteers. In 1915 General Leonard Wood took occasion to make a trip from New York in order to inspect the work of the high-school students. He gave it his hearty approval. The experiment demonstrated the readiness with which high-school students can absorb military instruction, and also showed the ability with which boys who have received a fair amount of training can in turn serve as drill-masters.

There seems to be little question as to the excellence of the material to be found in our public schools, or of the feasibility with which it can be wrought into effective shape. While the national government has shown its approval and willingness to help substantially wherever sufficient interest has been indicated, for some time to come a large part of the work must be done by the

individual states, or even by the individual schools in the states. Washington, Boston, Salt Lake City, and Omaha have for some years boasted their high-school battalions. The work once well started and efficiently managed will rapidly gain supporters. But it must be intelligently directed and the training given must be thorough and business-like, for haphazard or half-hearted military instruction is worse than none; it is, in fact, a demoralizing influence from which many of our colleges and semi-military schools have already suffered.

MILITARY DRILL IN HIGH SCHOOLS

LEONARD P. AYRES
Russell Sage Foundation

There are three questions that are always in order when it is proposed to establish a new course in the public schools to train workers for a definite trade or vocation. The first is: "What knowledge and skill required in the trade can the school give?" The second is: "What will the new course cost in time and money?" The third question is: "What can we learn about such courses from the experience of localities where they have been in operation?" These three questions are always relevant, whether the new course is for boys or for girls and whether it is designed to reach all of the pupils or only those who choose to enter it.

At the present time courses in military drill are being introduced in the high schools of several cities and their general establishment is being vigorously advocated. It seems the part of wisdom to scrutinize these new courses in the light of the three questions proposed just as we might if their object were any other sort of trade or vocational training.

The first question relates to the practical value of military training in high schools as a form of vocational education having as its purpose the training of boys for the work of the soldier. What is the military value of such training? The public hearings held by the different state commissions on the subject during the past two years have indicated that there exists almost unanimity of opinion on this subject among those who are competent to judge. The fact is that there is probably no other form of vocational training in our public schools yielding results of such meager practical value as those which are contributed by military drill. As commonly conducted in our high schools this work consists mainly in training in the manual of arms and in the close-order formations of the drill hall and parade ground.

The essentials of this training can be acquired rapidly and readily. It constitutes the least interesting and least valuable side of a soldier's preparation. It gives little more than the tinsel of soldiering. In the fighting of the Great War minor evolutions in close-order formation have almost disappeared. On the battle front the movements of troops can hardly be called marching and they are conducted mostly in the dark. The rifle is apparently being relegated to a far less important place than it has heretofore occupied, and the manual of arms is said to have almost completely disappeared. All the available evidence goes to show that such drill-hall and parade-ground training as a high-school boy may get in the limited time available for military drill will constitute a most meager contribution toward his training for practical soldiering.

The second question related to cost and here the outstanding fact that emerges when we consider military drill as a form of vocational training is that it is exceedingly expensive. A military rifle costs approximately $20, or a lighter rifle, which may be used for target practice, may be bought for about half that sum. This equipment may be handed on from one set of cadets to the next for a period of years, but will involve constant care and some outlay if it is to be kept in first-class condition. Complete uniforms are worth about $20 per cadet, or if the equipment be reduced to a cap and blouse the expense may be held down to between $6 and $10. This part of the equipment cannot well be handed on from boy to boy.

Drill halls are essentially expensive to build and maintain and are poorly adapted to any other use. Moreover, as most of our high schools are now organized, the buildings and teachers largely remain idle during the school periods while military drill is going on. If city armories are utilized instead of special drill halls, the direct expense will be reduced, but the indirect expense will be increased through the time consumed by the boys in going to and from the armories.

On the basis of the plans now being discussed in the educational press, it seems safe to hazard the guess that military drill in high schools will consume from 5 to 10 per cent of the pupil's time and from 10 to 20 per cent of the money expended for his high-school

education during the years that he continues his course in the new subject. These expenditures of time and money are so large that it is well to make sure before incurring them that there is an adequate relationship between the time and money spent and the value of the training purchased.

The third question related to the available experience with this form of education. Here the highly significant fact is that as a nation we have already tried the experiment thoroughly and over a long period of years and it has proved an almost unqualified failure. For many years the reports of the Commissioner of Education carried figures showing the number of boys in public and private high schools enrolled in courses in military drill. While the figures have never been complete, they indicate that for many years approximately 20,000 high-school boys have been pursuing courses in military drill. In general, these have been one-year courses, although this has not been invariably so. More than one-third of these high-school boys have been enrolled in the schools of New England. Apparently the number has not tended to increase much from year to year, but neither has it been diminishing so far as the figures show.

Other figures drawn from the same source indicate that about 30,000 young men are receiving military training in our agricultural and mechanical colleges and about 20,000 men in other colleges, universities, and technical schools. Again, most of these young men have been enrolled for one-year terms. These figures mean that we have turned out from the military courses in our schools something like 70,000 trained boys and men each year. There must be in our population somewhere between half and three-quarters of a million of these cadets who are still young and active men not many years out of school. Many among them undoubtedly received training in the battalions of their high schools and subsequent training in the colleges.

Since there is another large body of men probably aggregating several hundred thousands who have had the training of at least one enlistment in our state militia, it is clear that we must have at the present time in our population something like 1,000,000 young men who have received a military training at least equal to that

which it is proposed to furnish through the new courses now being established in our high schools. Our national experiences of the past year have gone far toward demonstrating that these 1,000,000 trained men constitute a negligible military asset to our nation. Almost no competent military man will argue that we should be much better off if their number could be increased to one and a half millions or much worse off if the number who had received such training should be reduced to half a million. In the light of our national experience with this widespread and prolonged experimentation, it does not seem the part of wisdom to set about securing a more general dissemination of this sort of military training among our young men.

Many other more or less serious objections could be raised against the contemplated courses in high-school drill. It may be well to point out that such training will fail to reach a very large part of our young men because they do not attend high school. Again, it is commonly given to boys of the Freshman class, who are too young and too physically immature to do a soldier's work. There is serious objection to any form of vocational education that undertakes to impart manipulative skill in any kind of work which the learner will not undertake for many years after he receives the training. In the present case it is proposed to train the boys at the ages of fourteen, fifteen, and sixteen, whereas even such militaristic nations as France, Germany, and Austria do not admit recruits to active service before the age of twenty.

It is worth noting, moreover, that, while the various countries of the world have experimented with military drill in their schools, they have one after another abandoned it, until, according to the Massachusetts Commission on Military Education, such work is now given in the schools of no countries of the world except Australia and Japan.

Perhaps it is best to rest the case against military drill in high schools on three propositions; military drill is an ineffective form of education for the work of soldiering; it is unreasonably expensive; if we as a nation organize these courses generally in our city high schools we shall inevitably deceive ourselves into feeling that we have thereby taken a truly effective step toward military preparedness.

MILITARY TRAINING IN THE HIGH SCHOOL

D. C. BLISS
Superintendent of Schools, Montclair, New Jersey

As a preliminary step to any discussion of the advisability of military training in secondary schools it is necessary to define the term, otherwise the expression will mean one thing to one person and a totally different thing to another. To one it means military drill in the same sense as it is used by the army officer, and includes training with a rifle, manual of arms, and close-order formation. This is a part of the type of training received by the United States regulars, or by the national guard, and has as its fundamental purpose the development of an efficient unit in a fighting machine. Others use the term in a broader sense, meaning such a development of a man's powers as shall make him capable of rendering efficient service to his country, either as a private citizen or, when this general training has been supplemented by technical drill, as an enlisted man. Those who accept the latter definition include in their interpretation of the phrase such a type of physical training as will produce healthy bodies and alert minds, with habits of obedience and self-control. Courage and patriotism are also included as essential products.

As popularly employed, military training is restricted to the first of these two interpretations and suggests that narrow vocational instruction which prepares for the life of the professional soldier. Abundant justification for this definition of the term is found in the current discussion of the question and in the various bills that have been introduced both in state and in national legislature. During the autumn of 1916, the *New York Times* printed a series of letters from the heads of preparatory schools, in which the writers expressed their opinions of the value of preparedness instruction—in the military interpretation of the term—in the various institutions which they represented. Such expressions as these abound: "I desire universal military training which shall begin with the

youths of twelve in this land and continue with men until they are well past forty"; "The boy who has had proficient military instruction in school has a vast advantage over the raw recruit"; "As a proper means of national defense the government should provide instruction, uniforms, and arms for all reputable secondary schools willing to take up military training"; "Our children must be trained for defense." These illustrations might be multiplied indefinitely, but more extended quotations are unnecessary to demonstrate that in the minds of the writers military training represents definite preparation for the life of a soldier. A similar interpretation is implied in the text of bills introduced in Congress and in the state legislature. The Chamberlain bill, introduced in the United States Senate, December 13, 1915, contains the same implication: "The training in the second period shall begin on the first day of July in which the persons liable reach the age of fourteen years and shall continue for two years. The training during this period shall be not less than ninety hours each year, ending the thirtieth day of June, and shall include military training with the rifle including gallery practice" (Senate Bill 1695, section 3 [b]). The later provisions of the section provide for a training in the third period, which includes field exercises and target practice. The Slater bill, introduced in the New York Senate, March 13, 1916, provides for military training for boys of from sixteen to nineteen years of age, for not more than 180 minutes a week after school hours, during the school term, and two weeks in camp during the summer vacation. The exact form of the training is not prescribed, but by implication it refers to military training in a narrow sense, since the Welsh bill, introduced at the same session, provides in detail for a scheme of physical training. The Pearson bill, introduced in the New Jersey legislature in 1916, was popularly supposed to provide for a strictly military form of training, and on the basis of this interpretation of its purpose, the opposition based its argument. In view of these and other excerpts which might be quoted, it would seem proper to consider the question of military training in high schools in accordance with the popular and generally accepted meaning of the term.

Several causes have led to the present widespread agitation in favor of military training for high-school boys. Among them are:

the unspeakable horrors of the present European war; America's evident lack of adequate preparation to resist aggression directed against the country by any first-class military power; the great wealth of the nation, making her a rich prize for any conqueror; the possibility of aggression on the part of some one of the great powers of the world. Two general plans have been suggested for creating the necessary military force: the first plan proposes to secure it from the adult citizenship of the country. Several methods of carrying out this scheme have been suggested. They include: (*a*) an adequate standing army, (*b*) universal military training for all able-bodied citizens, (*c*) federal militia, (*d*) state militia, (*e*) trained volunteer organizations. The advocates of the second plan believe that the necessary degree of protection can be best secured by military training in the public schools. No layman is competent to pass upon the comparative merits of the different methods for securing from the adult citizens of the country adequate national protection. This is the particular problem for the army expert. The average citizen is interested in the same way that he is interested in all problems of the nation which concern him directly, but he must leave the details to the profession particularly qualified to pass upon the question.

Military training for schoolboys is an entirely different proposition. Here are involved considerations, not only of preparedness, but also of the education of the youth of the country. If it should appear that military training is less effective in developing boys physically and mentally than a type of training broader in its scope, and if it should be established that military drill for schoolboys actually tends to decrease the number and efficiency of those who are willing to serve the country as soldiers, then both those who advocate this form of training and those who oppose it must reach a similar conclusion. The truth of this latter proposition is not capable of mathematical demonstration, though several significant facts appear. The military experts are generally agreed that the type of drill usually found in schoolboy organizations is useless in practical warfare. The manual of arms, wall-scaling, and close-order formations belong to the old order of things. The chief need of the army at the present time is men who are sound physically,

capable of enduring the hardships of long marches, trained to care for themselves in camp and in the trenches, and who know how to shoot and to keep their guns in working order. The high-school battalion as it exists today provides little or no training in these essential elements, and there is no reason to suppose that a wider application of the existing plan would change conditions.

The majority of physical-training experts condemn military training as a means of physical development. Dr. Sargent, of Harvard University, says: "It is not an adequate means of a physical training, being not only very limited in its activity, but actually harmful in its effects on boys less than eighteen or twenty years of age. It does not offer sufficient opportunity for the development of the individual's powers of muscles and mental co-ordination and the exercise of judgment under unusual and trying circumstances." Dr. Ehler, of the University of Wisconsin, says: "Military drill is an enthusiasm-killing, contempt-developing treadmill. Preparedness involves, primarily and fundamentally, the possession of vitality, endurance, integrity of structure, and function of every organ, alertness, bodily skill, self-control, hardihood, courage; in other words, the fullest development of the physical, mental, and emotional powers, the result of real physical education. Let us not confound drill with training, nor substitute military drill for physical education." Experience indicates that military drill for schoolboys actually tends to decrease the number of enlistments in the national guard. A captain of a company in the national guard in New York state opposed the formation of a high-school cadet corps on the ground that none of the boys would afterward enlist in the local company. Boston, with compulsory military drill in the high schools for fifty years, has fewer enlistments in the United States army than any other similar population area in the United States. The almost universal testimony from institutions where military drill is one of the requirements for graduation is that the men detest the monotony of the drills and seek to evade the requirements in every possible way. The frequent disbandment of voluntary cadet corps in high schools testifies to the monotony of the work and to its failure to offer any permanent attraction to the young. Military authorities are by no means

united in their advocacy of such training for boys of high-school age. General Leonard Wood has recently said: "Personally, I do not believe we should give the training until the year in which the youth becomes nineteen." Baden-Powell declares in an epigrammatic sentence: "Drill the schoolboy and spoil the soldier." If this country is sincerely seeking a state of effective preparedness, it cannot afford to ignore the experience of those European countries which have made military service of adults universal and compulsory. Among those nations in which everything is subordinated to the creation of an effective fighting machine it has in every instance been considered inexpedient and unwise to resort to the military training of high-school boys. Why, then, should our own country seek to impose upon minors, who, as dependents, are unable to refuse such training, a requirement which adult citizens shrink from accepting for themselves? Such a policy would seem fraught with the grave danger of lulling the nation to a sense of false security, leading its citizens to depend for defense upon the superficial training of large numbers while the real substance of preparedness is lacking.

Among other schemes for military training of boys the so-called "Wyoming Plan" has been widely heralded by newspapers and popular magazines. A careful study of this scheme by personal visitation indicates that it is a misnomer to call it a state plan. True, it has received the official sanction of the state legislature by the appropriation of state funds to the extent of $1,000 to assist pupils in the purchase of uniforms, but the appropriation of a small sum of money can hardly be said to constitute a state plan of training. At the present time not more than three hundred boys are enrolled in the various cadet corps, and the greatest diversity exists in the methods employed in the various towns. Such a condition is inevitable when it is understood that in the entire state but one city has a physical director and military instructor. In every other instance the work is carried on by one of the regular teachers who is given a small increase in his regular salary for directing the work. In one city the initiative in establishing a cadet corps was taken by the Board of Education, who directed, as a protest against the extravagance in dress of the high-school

pupils, that all students, both boys and girls, should wear uniforms. For the boys this was the naval uniform, and for the girls middy blouses and plain blue skirts. In Wyoming student interest in drills follows the same course as has been shown in other states in which high-school battalions have been formed. In one city, after two years' existence the corps was disbanded because of lack of interest on the part of the pupils, and the rifles were shipped back to Washington. In another, after the squads reached a high degree of proficiency in wall-scaling—which is simply an athletic stunt—the boys became tired of practice, and the work was discontinued. Still another city stresses the manual of arms and platoon drill for the small squad of thirty-five boys who take the work. In this instance most of the boys are unprovided with uniforms. Little evidence was found of any practical results from the appointment of girls as sponsors for the various squads. As a rule, no sponsors have been appointed for the current year, and in the few places where they were found their function seemed to be largely social. Careful inquiry was made among superintendents, principals, and teachers relative to the effect of this form of training upon the moral attitude of the pupils. General agreement was found that the Wyoming boys are true to type, and that the same vigilance on the part of teachers is necessary to prevent smoking and to maintain high standards of moral conduct as is found essential in conducting athletics in the average high school. It is impossible to view with complacency the social cleavage resulting from any scheme of military training restricted in its application to pupils of the secondary school. The best available evidence indicates that a comparatively small proportion of the pupils enrolled complete the high-school course. To impose the burden of national defense in this way upon a small minority is utterly repugnant to the democratic ideal. It is true that many of the boys not in the high school are engaged either in self-support or in the support of dependent relatives, but it is equally true that many a high-school boy is bearing the same burden.

It is difficult to avoid the inference that the supporters of the military training idea see in the school a convenient organization for carrying out the plan, and that consequently they follow the

all too common practice of placing the responsibility upon the already overburdened school system. Should it seem wise to make military training compulsory for boys of the high school, if required at all, it should apply to all boys of prescribed ages and physical condition. Unless this is done, plainly any boy who so desires may escape the obligation by the simple expedient of leaving school, and in this way the present tendency to leave school before the completion of the course will be aggravated. The moral virtues of obedience, patriotism, and self-sacrifice are no more desirable for the soldier than for anyone else. They are qualities which should be possessed by every upright, useful citizen, and the school is failing in its manifest duty unless it already has as its fundamental aim the development of these essential virtues.

MASSACHUSETTS COMMISSION ON MILITARY EDUCATION

The legislature of Massachusetts appointed a special commission to report on the practicability of providing military training for boys, and of creating a militia reserve. It consisted of: Robert L. Raymond, *Chairman*, lawyer; Walton A. Green, *Secretary*, editor and publisher of *Boston Journal;* Rev. Charles W. Lyons, S.J., president of Boston College; Alexander Meiklejohn, president of Amherst College; J. Frank O'Hare, secretary of Boston Printing Pressmen's Union; William A. Pew, Major-General, M.V.M., retired; William Stopford, Major-General, M.V.M., retired; John J. Sullivan, Brigadier-General, M.V.M., retired; Harold W. Sweet, manufacturer, mayor of Attleboro.

The first two points to be reported on were: (1) The practicability of providing military education for boys between the ages of fourteen and twenty-one for the purpose of securing a proper military training and discipline for the youths of this commonwealth, and for improving their physical, moral, and mental qualities, and providing for the commonwealth an adequate basis for a citizen soldiery; (2) the practicability of providing military training for youths in the public high schools.

By special arrangement with the secretary, the *School Review* is granted permission to reprint portions of the report of this commission.

Military Training in the Schools

"Military training" in the schools, as the words are used by different persons, may mean one or more of several things.

First, military drill, in the sense of training with a musket, manual of arms and close order formation. In a word, an imitation of the sort of training which a young man receives at the armory when he goes into the militia.

Second, physical exercises and physical training which will develop not only the body but the attention and mind of the boy receiving it.

Third, the teaching of true military history, personal hygiene, and camp sanitation.

Fourth, the teaching of love of country and willingness to serve it.

The overwhelming weight of opinion from school teachers, military experts, officers of both the regular army and the militia, and the general public is against military drill as defined in the first clause above. It is generally agreed that the military drill which a boy receives in school is of little or no advantage to him from the point of view of practical soldiering. As far as available evidence goes, drill in the schools has had no beneficial effect in promoting enlistments in the militia except in a few isolated localities. For various reasons, it has seemed to create a dislike for soldiering. Military drill in the schools is objected to by many on the ground that boys of school age have not attained sufficient mental maturity to appreciate what war and fighting mean, and are therefore unable to digest ideas which military drill presents to them in concrete form. It is worth noting that military drill as such is given in the schools of no countries of the world except Australia and Japan.

The Commission does not recommend military drill in the schools but is opposed to it.

Physical training which tends to make a boy strong, physically well set up and mentally alert is the proper preparation for the real intensive training necessary to make a soldier, as it is also the proper preparation for civil life. The overwhelming weight of public opinion favors the greater development of physical training in the schools and the standardization and inspection of such training by some central authority.

The Commission recommends the adoption of a systematic plan of physical training in the schools and has drafted legislation providing for that purpose. It believes that the basis of such training should be the system of calisthenics used for many years at West Point under the supervision of Captain Herman J. Koehler, not because that system is particularly military, but because, according to the consensus of expert opinion, it is the best system which can now be adopted.

The Commission also recommends the teaching of personal hygiene, camp sanitation, and the truth about our military history, in the schools.

The Commission also recommends the establishment of training camps for school boys during one month of the summers preceding or following their last year in high or Latin schools. Attendance at such camps should be voluntary and they should be conducted under the joint supervision of the State Board of Education and the Adjutant-General.

The teaching of patriotism or love of country in the schools is something which can hardly be standardized or provided for by legislation. Nevertheless, the Commission feels warranted in expressing the hope that teachers throughout the Commonwealth will feel that it is their duty to inculcate these ideals in the minds of the boys under their charge as a real part of the school life.

The most frequent criticism as to American boys is that they seem to lack a sense of responsibility or of loyalty and duty to something beyond themselves. A spirit of devotion to his country is the finest spirit which a boy can acquire.

That spirit is not at all incompatible with the teaching that every endeavor must be made to maintain peace. The militaristic spirit which means blind faith in the doctrine of force is perhaps the most vicious idea which could be instilled in a boy's mind. The military spirit which means a willingness to serve and fight for his country in time of need, which recognizes as abhorrent the point of view which relies on others to perform the service and do the fighting, is a fine and unselfish sentiment which can not be too early instilled into the youthful mind.

There is no need to use the word "military" in this connection. It is offensive to many, and unquestionably means very different things to different people. What the boy should be taught is that nothing can ever make other than glorious and holy the death of one who dies for his country, and that no boy can shift to the shoulders of others a duty to the nation any more than he can a duty to his family or friends.

CHARLES W. ELIOT, PRESIDENT EMERITUS OF HARVARD UNIVERSITY

Military training in the public schools relates usually to the least interesting and least valuable side of a soldier's preparation. The training in the schools should be devoted to methods which are absolutely sound in regard to the equalization of skill as well as the equalization of bodily condition. If we use such exercises in our schools, systematically and in all schools, we would give the boy the best preparation he could receive at that time of life for a soldier's future and it would also give the boys the best preparation the schools can give for service in the industrial army. And the industrial army is just as important for success in war as the army that fights.

I have heard a great deal of talk lately about the importance of a boy's acquiring the habit of implicit obedience: that is the worst habit a boy can acquire after he ceases to be an infant, because it implies the subjection of the boy's own will.

The worst maxim that has ever been used in education is "Break the child's will." The soldier's discipline, as it has been understood in despotic governments of the Orient and of Europe today begins with the breaking of will, the subjection of every man to his superior officer instinctively—on the spot. That is not a good way to train republicans. What we want in the form of discipline in the army is just what we want in industries; it is the co-operative work; it is the sense of comradeship, fellowship, which in sports we call "team-play." That is the discipline a Republic ought to give its children. And the military discipline that has come down to us is something quite different and very inferior for the purpose of educating and training effective human beings.

The military form of discipline is not individualistic enough for the teacher or for the Republican statesman.

I am a believer in the voluntary system of enlistment and, therefore, a voluntary system in training for war and also for peace purposes. I believe

that superior efficiency can be obtained under the voluntary system, both in fighting and in industries.

It seems to me there is a very great objection to interfering with the personal liberty of the American citizen. It is because of the personal liberty of the American citizen that this Republic exists.

The chance that we should be called upon to defend this country against European or Oriental attack may fairly be called infinitesimal; and yet when we see what the consequences of successful invasion are under the present barbarous methods of conducting warfare, I think we are justified in putting out insurance money in this respect.

I notice some European countries pay men a portion of what they would earn if they went on in the industries in which they are already interested. That is something the State of Massachusetts could do.

Q. What is your opinion of using the militia in strike and riot duty? A. I suppose that is a very unwilling duty to the militia, but I think it should be used to keep peace.

Q. I did not mean without a substitute—but rather as to the efficacy of the militia for what is more of a police duty. Do you consider the militia equipped by training now for such duty? A. Not nearly so well as the regular army.

Q. Or so well as a constabulary? A. Not so well, certainly, because the regular army and the constabulary in Pennsylvania are all the time in service and enlisted for every day in the year: of course they are much superior.

GEORGE NASMYTH, ESQ., DIRECTOR OF THE WORLD PEACE FOUNDATION

We are all in favor of a reasonable preparedness against war and because we desire that this preparedness shall be adequate, we must protest against the adoption of futile or obsolete methods which experience has shown are likely to defeat the object we have in view. America should make preparations against war which will be really effective, such as the formation of a League to Enforce Peace, the building of submarines and the strengthening of coast fortifications, the abandonment of useless army posts, originally erected to protect the settlers in the west against Indians, and the concentration of the military forces which this would release in larger mobile units in connection with the coast fortifications.

On the other hand, the measures proposed in the resolution authorizing the appointment of this board are futile to achieve the end desired and dangerous because they tend in the opposite direction.

The proposed military training of all boys, while useless from the point of view of real preparedness against war, constitutes a real danger because of its effect in militarizing the minds of the coming generation. The object of the United States at present is to get preparedness without militarism, and the proposed measures are designed to defeat this object.

Military education of high school boys between the ages of fourteen and twenty-one is designed to increase militarism in America and is a step toward preparation for war and not against war. I oppose it therefore not only as useless from the point of view of real preparedness, but as a danger to the peace and the democratic institutions of this country.

From the militaristic belief that war is a good thing and is inevitable you get the familiar Bernhardi logical argument. The steps of this chain are (1) since war is inevitable, we must prepare for it; (2) our preparation must be adequate or it is useless; (3) the best defense consists in an attack when your prospective enemy is not so well prepared as you are; (4) it is the duty of a country to declare war at the most favorable opportunity.

Bismarck in his "Reflections and Reminiscences," Chapter XXII, tells us definitely how the Prussian militarists tried to push him into war, how he used this militarist pressure to throw the country into war with Austria in 1866 and with France in 1870, and how he had to resist the powerful militarist pressure toward war in 1867, in 1875 and on other occasions. Bismarck says on page 102, Volume II:

"It is natural that in the staff of the army not only younger active officers, but likewise experienced strategists, should feel the need of turning to account the efficiency of the troops led by them, and their own capacity to lead, and of making them prominent in history. It would be a matter of regret if this effect of the military spirit did not exist in the army; the task of keeping its results within such limits as the nations' need of peace can justly claim is the duty of the political, not the military, heads of the state.

"That at the time of Luxenburg question, during the crisis of 1875, invented by Gortchakoff and France, and even down to the most recent times, the staff and its leaders have allowed themselves to be led astray and to endanger peace, lies in the very spirit of the institution."

The experience of the past year has shown that victory in modern wars is chiefly a matter of ammunition, and I should favor the storing up of millions of rifles, other munitions and supplies instead of the useless and dangerous measures proposed in these resolutions.

Dr. Hugh Cabot

Military training, or training leading toward military efficiency, is at once not only preparation for defense or fighting, but, and far more important, an equipment for the business of living.

We concern ourselves with the training of mind but concern ourselves very little with the training of body, and with the relation between mind and body, called discipline.

As civilization tends to draw people together in large sections, the ability to look after one's self, and all that goes with it, is more and more neglected. It is certainly true that men of two generations ago were better able to look after themselves than the men of today.

Men should not fear unknown conditions because they are unknown. I think one sees it strikingly that the city-bred man is afraid of unknown situations.

Teaching boys things they ought to know is not conscription: it is education: part of the business of a democracy.

This military training should be begun in the school. At the age of ten boys should be taken out in the open and taught to look after themselves. If it is undesirable to take time from the curriculum, there is plenty of time in the summer vacations. It will be a thing that will pay perfectly sound dividends in the health of the community and in discipline. I think it is generally admitted to be strikingly true in our educational system that we do not introduce much discipline. There is more discipline in athletic crews and teams than in the educational system. They learn, in athletics, the discipline of obedience, that they have got to do certain things if the game is to go on.

The tendency of our civilization is to gather people together in a big city and take away from them the good that country living has developed. We should provide against this by a system of military training under the control of the State or national government.

DR. DUDLEY A. SARGENT

Let us consider first what are the fundamental requirements of modern war as regards the men and women of a belligerent country:

(*a*) Health and vigor of its people, and the knowledge of how to maintain it under both favorable and adverse circumstances.

(*b*) Mental acumen and bodily and mental control under trying circumstances.

(*c*) A courageous and generous spirit that will fight for what it believes is right for all it is worth.

The musket is a one-sided implement, too heavy for young boys and inefficient and harmful for older boys.

Recruits of eighteen show physical immaturity which results only too frequently in their ending in the hospital or being discharged as invalids. Recruits of eighteen require two years' special training before they are fit for military training.

The most military nations in the world do not have military drill in their schools, but give military instructions and training only after the boys have reached eighteen or twenty years, and have received years of physical training as a part of their schooling.

A rational system of physical training in the schools and colleges would be of the greatest value in preparing the youth of the country—both boys and girls—for the struggles of both war and peace.

Q. Are you familiar with the West Point military calisthenics? A. Yes.

Q. Do you think that is a good form of exercise to have in the schools, without any guns or weapons? A. Excellent. And it has become more excellent since Captain Koehler enlarged upon it.

Q. Speaking practically of our general schools, how much time would be healthful and practical to be allowed physical exercises? A. Half an hour a day at least.

Q. Consecutively? A. Better consecutively.

Q. In the open air? A. Yes, if you can.

Q. If we should have half an hour carefully arranged according to the best possible plan, would that be quite sufficient to develop our boys? A. Yes, it would be surprising to find how much you would get.

Miss A. E. Esilman

We have the unenviable reputation of being the most criminal nation. I think that I have a way to give us the lead in righteousness as well as to insure continual peace.

This country has had a full fling of self-governed youth, with the result that 4,867 young men, from 15 to 25 years old, were imprisoned in 1913 in the State of Massachusetts alone. One thousand eight hundred and thirty-three of them were under 21 years of age, and 175 of these were in for drunkenness.

Penal institutions cost this State over one and two-third millions net in 1913.

You have had the idea advanced here that military training is bad because it requires implicit, immediate obedience. These statistics are of boys who would not obey.

An idle mind is the evil one's workshop.

One reason for recommending military education for boys is because a boy's ideal is a manly man—and soldiers are always men, usually attractive and finely set up as a result of the training.

The idea of compulsory military service is not new. It dates back to 1785 when all able-bodied men in the country were enrolled in the Militia which was to be part of the army. Quite a few things are already compulsory —jury duty, school attendance, taxes, vaccination, and compliance with the Board of Health rules.

You have armories lying idle four or more nights a week—town halls usually idle at night—school halls seldom used. Why not put them to use? A place where big boys could learn men's work.

Substitute manly occupations which are helpful and entertaining for street attractions and penal institutions. A soldier is a respected man among his fellows because he represents authority and power—just what every boy is looking for. Put that power within his reach along educational lines, with good times, and you'll have no more difficulty.

The Federal Government should furnish expensive equipment, artillery, aeroplanes, and motor vehicles. A goodly number of lads are sure to find the key to success within those armories—poor, effeminate mothers' darlings as well as those who never saw much wholesome training before.

To make military service voluntary is to invite men to offer themselves as a sacrifice for their more selfish fellows who stay at home and make the necessities of the times their season of profit. If all this stir about preparedness is only to get volunteer enlistments I shall be disappointed. No man should be solicited, no matter how indirectly, to assume such a risk, while others equally able refuse to do their part. The whole proposition is contemptible and men are beginning to realize it.

Wars, riots, and strikes are rich men's quarrels usually. They would be far less frequent if their own heirs had to face the enemy or mob. None should be excused who are able to serve, the rich least of all for they have most at stake. The army surgeon should be the judge of their condition.

Voluntary enlistment would never give us enough to insure peace without worry.

If we train all our boys, in case of actual war only men between 21 and 30 need ever serve, for that would give us an army of over 10 millions.

Gentlemen: You are entrusted with the consideration of a plan for public defense. Earnestly I entreat you to consider the boys as future citizens and soldiers, and to make a plan that even our poorer communities can follow and the United States Government copy—something simple, strong and practical, that will be permanent, to make "A citizenry trained and accustomed to arms," as President Wilson expressed it.

HERBERT F. HARTWELL, CAPTAIN HEADQUARTERS STAFF,
2D REGIMENT, M.V.M.

Again, if I have read the signs aright, among schoolmen there is little support, some passive receptivity and considerable active opposition to the idea of military drill in the schools, and I consider that they have some good reasons for their opinions. My own experiences as a high school cadet in Massachusetts for four years may not have any value for, or bearing on, the new idea of military training, so I will merely say that my subsequent experience as a national guardsman has taught me that, aside from how to march and to handle the rifle, it was of no practical value.

There are, I think, certain elements of military training, or certain branches of the soldier's profession that could with great value be introduced into high school work. For example, wireless, wig-wag, and other signal methods, with the necessary learning of the Morse code, field sanitation and personal hygiene, the mathematics of engineer and artillery problems, and the manipulation of engineer, signal and artillery corps instruments. Moreover, since the bulk of a field army is composed of infantry, install rifle ranges, issue a

certain number of rounds of .22 caliber ammunition to each boy, and give him instruction in shooting. Instruction in the use and caution against the misuse of firearms is vital to every community.

There is a certain definiteness of achievement in military matters which does not of necessity have to be put to the blood test to show efficiency. To secure that which we need is not a certain amount of training in the high school of an hour or so a week of perfunctory work, but a "round up" of all young men of, say, 18 years of age and physically fit, in a camp for drill and instruction for the period of a month in the summer for intensive drill eight hours a day. By so doing we will have the malingerer where he will be under discipline, the law will play no favorites, and those in charge will be answerable to their fellow citizens, to their wives and their children for an efficient protective force in time of the nation's greatest need.

BRIEF SUMMARIES OF PRINCIPAL MILITARY SYSTEMS, BY THE MASSACHUSETTS COMMISSION ON MILITARY TRAINING

The Commission believes the following brief popular summaries of the military systems of other leading countries may be of interest. They are, of course, based on conditions existing before the Great War.

SWISS SYSTEM

Compulsory universal service.—The Swiss Constitution provides that every man is liable to perform military duty between the ages of 20 to 48. (Legal liability begins at 17, but service at 20.)

Exemptions.—(*a*) Federal officials; (*b*) employees of postal and telegraph service; (*c*) officials of hospitals and prisons; (*d*) police; (*e*) clergymen; (*f*) teachers.

Divisions of service.—The Army is divided into three classes:

Élite	Men from 20 to 32
Landwehr	Men from 32 to 40
Landstrum	Men from 40 to 48

Élite.—At 20 the young Swiss reports for admittance to service and is examined by local commissions. Examinations are both physical and mental, the former being very severe. About 50 per cent of those reporting are rejected. If the candidate passes he is given his soldier's register in which there will be recorded his entire military history. He is also issued uniform, equipment, and rifle. These he takes home and keeps during his whole period of service, being responsible for them and their condition under heavy penalties.

The first year's course of instruction is at designated training places, and is called a recruit school. Eight hours work per day, Sundays excepted, are required. Instruction is in school of the soldier, company and battalion, target practice, care of arms, cooking and hygiene. Recruits during their first year serve—

Infantry, Engineers and Foot Artillery, 65 days.

Artillery and Garrison, 75 days.

Cavalry, 90 days.

After first year soldiers in Élite (other than Cavalry) are called out seven times, for a service lasting from 11 to 14 days.

Cavalry serve only ten years, *i.e.*, to age of 30 in the Élite; but are called out eight times for service of 11 days each.

Training periods after the recruit course are devoted chiefly to tactical maneuvers in large bodies. Division operates against division, starting at widely separated points.

At all times the training is very practical. Little attention is paid to mathematical precision in marching. Field work, with long marches in full kit, is the rule. Average march, 15 to 19 miles.

Landwehr.—Called out only once for service of 11 days.

Landsturm.—Called out only in case of war.

School instruction.—Every boy must attend school until 15. From 10 to 15 boy is given athletic and gymnastic exercises but no distinctive military instruction. Object is to turn out vigorous and agile men with minds impressed with ideas of duty and honor. This instruction is controlled by the cantons.

Voluntary organizations.—There are voluntary military organizations for boys known as "Cadet Corps." Rifle-shooting is a national sport as baseball is here. There are many rifle clubs. Some are for boys from 11 to 20. In 1914 about 13,000 boys were members of these clubs. Rifle clubs for adults are under federal control and encouragement and have a membership of over 213,000.

Strength of army.—Switzerland can mobilize a trained and equipped army of 220,000 soldiers in twenty-four hours. Behind this first line is a reserve of 270,000 men, of whom 70,000 are armed.

Military tax.—Every Swiss citizen at home or abroad between the ages of 20 and 44, who for any reason is not accepted and enrolled in the active or reserve armies, is obliged to pay a military tax. This tax is of three kinds:

1. Military poll tax, $1.20.

2. Military property tax of .15 per cent of assessed value of property in excess of $200.

3. Military income tax of 1.5 per cent on income.

This tax is in addition to all other taxes; the assessments are rigorously made and every penny is exacted.

AUSTRALIAN SYSTEM

Compulsory universal service.—The Australian "Defence Act" makes military training and service compulsory upon all male British subjects between the ages of 12 and 26.

Exemptions.—Temporary exemptions are granted to: (*a*) school teachers qualified as instructors of junior cadets (see *infra*); (*b*) members of regular army and navy; (*c*) residents of sparsely settled districts; (*d*) residents 5 miles from training places; (*e*) theological students; (*f*) those physically unfit.

Permanent disqualification exists against: (*a*) those convicted of crime; (*b*) those of bad moral character.

Divisions of service.

Junior Cadets, ... Age 12 to 14
Senior Cadets, ... Age 14 to 18
Citizen Forces, ... Age 18 to 26

Junior cadets.—Education is compulsory up to 14 years in most of the Australian states and shortly will become so in all of them. Three-fourths of those liable to junior cadet training are in the State Schools and the rest in private schools. Consequently the schools supply this training with supervision from the military authorities.

The course covers 120 hours per annum and consists of: (*a*) at least fifteen minutes of general physical training; (*b*) infantry squad drill; (*c*) any two of the following: (1) miniature rifle shooting; (2) swimming; (3) running games; (4) first aid.

No uniform is required or allowed. The object of this training is simply to improve the physique of the boys, and medical examination is intended only to exclude those who would be injured by the work. In 1913, 55,850 junior cadets were in training.

Senior cadets.—All boys must be registered in January of the year in which they become 14. In July of that year, after a rigid medical examination at which about 10 per cent are rejected, they receive uniforms, "record books," and arms (all of which they use only when on duty), and are told off to companies. They are now a part of the army and liable to any service required. For the convenience of schools having 60 senior cadets or over and a qualified instructor, the organization of special units at such schools is permitted.

The course covers 4 whole days, 12 half-days and 24 night drills annually. At the end of each year a military board examines each cadet and passes him as "effective" or requires an extra year's service if he is "non-effective." In 1911 there were 92 battalions of senior cadets, with 922 companies and 89,184 officers and cadets. (N.B. The "battalion," as applied to senior cadets, is a geographical and not a numerical division.)

Citizen forces.—At 18 years all senior cadets receive a severe medical examination for the citizen forces, at which over 30 per cent are generally rejected. Each soldier is armed exactly as in the British army.

The course covers 7 years, in each of which there must be 16 full days' service (8 of which must be in camps of continuous training) and 1 year wherein attendance is required only at registration or muster parade. (N.B. Artillerymen and engineers must serve 25 days annually for the first 7 years, 17 of which days must be spent in camp.)

All promotion is by competitive examination based on merit and is from the ranks. In 1913 the citizen forces were 45,000 men and ultimately will number 152,000. Discipline is carried out by fines and no defaulter can ever obtain government employment.

Reserves.—There is no reserve force, but on completing the twenty-sixth year, the men are expected to join the rifle clubs, which receive government encouragement.

Regular army force.—The regular army force in 1911 consisted of 2,003 officers and men.

FRENCH SYSTEM

Compulsory universal service.—All men are compelled to serve 3 years in active military service. Although Frenchmen need spend only 3 years in barracks they are all subject to service from the age of 20 to the age of 48—thus remaining at the disposal of the military authorities for twenty-eight years. Only the infirm are excused.

The active army.—The active army is composed of soldiers accomplishing their three years of compulsory service.

Every year, from the first to the fifteenth of January, census tables are drawn up by the municipalities. On these tables are inscribed the names of all those young men who have attained the age of 20 during the year, and who are domiciled in the commune. These young men are then summoned to appear, in the simplest clothing, before a special council, which is known as the council of revision, and which meets at the chief town in the district; it is presided over by the prefect, and comprises a general, a councillor-general, an arrondissement councillor, and a councillor of the prefecture. A military surgeon examines the young men, and the council decides whether they are fit for service or whether they should be "adjourned." All those incorporated are afterwards inscribed on a special register—when they receive a military *livret*, or memorandum book, which they must produce whenever required.

Distribution of recruits.—Recruits may be drafted to any garrison; in other words, recruiting is not local or territorial, but national; a young man born at Marseilles may be sent, for example, to Dunkirk.

The recruiting of the reserves and the territorial army is always regional, with a view to rapidity of mobilization.

Special engagements.—Men more than 18 and less than 32 years of age, who are neither married nor widowers with children, may, on condition that they have never been condemned by the courts, engage to serve for four or five years. Re-engagements, having the great advantage of strengthening the staff of under officers, are encouraged by premiums and by higher pay. The ex-under officers re-engaged have the right also to pensions in proportion and to civil employments.

Special enlistments, and postponement of service.—Young men who contract to serve for more than three years may join before the age of 20 under certain conditions, and those who are students or engaged in some industrial, agricultural, or commercial exploitation may obtain, upon the advice of the council of revision, a postponement of service, renewable in some cases until the age of 25.

National colleges.—Young men admitted to the entrance examinations in certain national schools—the Normal Superior College, the Central College of Arts and Manufactures, the School of Forestry, the School of Bridges and Highways, and the School of Mines—may receive there a special military training, and are prepared for the grade of sub-lieutenant of reserves. If they

pass the necessary examinations for this grade, they need serve only one year as soldiers and may complete their time as officers. Young men admitted to the Military School of Saint-Cyr or the Polytechnique School of Engineers must themselves pass a year in barracks. All young Frenchmen are subject to this common rule.

In the barracks the soldiers receive a course of thorough physical training, in addition to which is complete instruction in the whole duty of the soldier, both theoretical and practical.

Divisions of service.—The term of service in the ranks of the first line, or "active" army, is, as has been said, three years, and the men join at the age of 20. The soldier completing this time then belongs to the reserve for eleven years; after which he passes to the "territorial" army for seven years; finally completing his service with seven years in the "territorial" reserve. Men of the reserve of the active army are called up for training and maneuvers twice in their period of reserve service, for four weeks on each occasion. The men of the "territorial" army have only one training of two weeks, and those of the "territorial" reserve no periodical training.

Mobilization.—Owing to the length of the reserve service the number of reservists per battalion is very large (2,000 or more). On mobilization, therefore, the reserve not only brings its unit to war strength, but every battalion and regiment forms a corresponding reserve unit, and there is still a certain surplus left for the depôt. In peace time the troops on the eastern frontier have a considerably higher establishment than the remainder. The mobilized strength of a normal army corps would be nearly 33,000 combatants. The strength of a cavalry division of six regiments would be about 4,700 combatants.

Strength of the Metropolitan and Colonial Armies of France.—The Metropolitan Army has 736,164 men in France, and 82,368 men in Algeria and Tunis —making a total of 818,532 men.

The Colonial Army has 28,000 men in France, and 59,000 men in the French colonies—making a total of 87,000 men. The general total, therefore on a normal footing is about 900,000.

GERMAN SYSTEM

Compulsory universal service.—The whole of the German military system is dominated by the principle of universal service according to which every male subject is liable to military service from his 17th to his 45th year. Service actually begins at 20.

Exemptions.—The number of exemptions depends upon the budget granted to the army for the period concerned. The budget has never allowed a full application of the principle in times of peace. Those afflicted with physical defects, however slight, are certain of exemption, also only sons indispensable to their family, and usually theological students. All classes of

offenders against the law are excluded from service while under court suspension of their civil honor.

Types of recruits.—From the standpoint of military training the men of the ranks are divided into two groups, those who have completed an education equal roughly to our high-school course, i.e., through the seventh year of the Gymnasium or Realschule, and those who have not.

Regular recruits.—The latter must serve two years with the colors if enlisted with the infantry, three years if with the cavalry or horse artillery. These years are spent in severe military drill. The men are housed in the government barracks, are clothed and fed and allowed a small pay of about 6 cents a day. Small maneuvers are frequently held, but every fall a grand maneuver of eight weeks under the most complete war conditions possible is engaged in. Aside from the physical drill schools are conducted for the men by the lieutenants to give instruction in the most elementary military science, history and geography.

Reserve.—After the two or three years with the colors the men are assigned to the reserve for five or four years. During this term they are called upon to take part in two grand fall maneuvers of eight weeks each.

Landwehr, first ban.—For the next five years they are attached to the first ban of the Landwehr, during which time they undergo two trainings of from one to two weeks each. The cavalry receives no additional training after leaving the reserve.

Second ban.—After five years with the first ban the men are enrolled with the second ban of the Landwehr up to the completion of the 39th year; but no training is demanded during this time.

Landsturm.—After this up to 45 they compose the first ban of the Landsturm. The second ban of the Landsturm is made up of untrained men between the ages of 39 and 45. The Landsturm receives no training and is the last to be called out in time of war, and then only provided the war is a defensive one.

The actual training of the ordinary private then consists of two full years with the colors, twice eight weeks with the reserve, and twice one to two weeks during the next five years with the first ban of the Landwehr.

Noncommissioned officers.—In times of peace promotions from the ranks are made only to all ranks of noncommissioned officers, ranging from the lance-corporal to the sergeant-major. Rarely more than the first promotion is made during the first two years with the colors. Those who have completed the two years with an honorable record have the option of remaining with the colors as corporals. Upon completion of twelve years of honorable service the state provides to retiring noncommissioned officers employment in its civil service followed by old age pensions.

One-year volunteers.—Those who have completed the so-called high-school education mentioned above may enter the army as one-year volunteers. This shortens the service with the colors by one year and exempts from most

barrack duty. In return, volunteers must supply their own lodging, board, and uniforms. Though the training in most respects is identical with that of the ordinary private, due allowance is made for the higher intellect of this class. Promotion to lance-corporal is made on the basis of record at the end of the first half-year and to corporal after the fall maneuvers. Such corporals then have the option of serving in the very next grand maneuvers, at the end of which, if their record is still favorable, they are admitted to an examination on the basis of which they are recommended to their local corps of officers for promotion to lieutenants of the reserve. In time of war this class furnishes the bulk of officers for the reserve and the Landwehr. It is interesting to note that a very large percentage of one-year volunteers choose to serve during their first year at the university with a regiment stationed in a university town. Thus they manage to satisfy not only the exacting military requirements and the requirements of the first university year, which may be made very light, but also the rather heavy duties imposed upon the first year men by the fraternities at a German university. The ratio of the one-year volunteer to the ordinary private seems to be as high as 1 to 25.

Ersatz.—All able-bodied men who have not been accepted by the recruiting officers are assigned to the "Ersatz Reserve," a substitute reserve, to which they belong up to the end of the 39th year. After that up to 45 they are enrolled in the second ban of the Landsturm. These men are drafted and trained in time of war. With an especially favorable army budget they sometimes receive short training in times of peace. This body is variously estimated, the lowest figure being about half a million able-bodied men.

Officers. Types of applications.—Those who seek regular commissions in the army either enter a cadet school at a very early age, usually at 10 or 12, or join the ranks as "avantageurs" after having passed the one-year volunteer examination or the university matriculation examination, or, in many cases, as late as after one or two years at the university.

Cadet schools.—The training at the cadet schools, of which there are eleven, is severe and under an excellent staff of instructors, but is not very broad. It is strictly a professional schooling. Military drill and the rudiments of military science are carefully ground into the pupils, and mathematics, drawing, history and geography are taught from a military standpoint. Much emphasis is also put upon Latin and the principal modern languages. At these schools the sons of deceased or needy army officers or other servants of the State are maintained wholly at the expense of the government. Others pay a sum of less than $300 a year. Upon graduation after a seven-year course the cadet is appointed to serve as ensign with the colors.

War schools.—After a year of such service the brighter men are sent to the Kriegsschule, war school, while the rest are made to spend an extra year with the colors. To this school are also sent the "avantageurs" after having served one, rarely two, years with the colors as volunteers. Here the higher branches of military science are taught and the command of modern languages

strengthened. The course is for thirty-five weeks only and all the expenses are defrayed by the State. After graduation and upon examination candidates are appointed lieutenants and assigned to some regiment.

Selected cadets.—Cadets who have especially distinguished themselves at the cadet schools are exempted from service with the colors. Instead they remain at the school an extra year ("Selecta"), during which they receive instruction similar to that at the war school and are then admitted to an examination entitling them to a lieutenant's commission. "Avantageurs" who have spent at least one year at the university also need not attend the war school. A six-months course of study for the second half of their year with the colors is outlined for them to prepare them for the lieutenant's examination.

Promotion.—Promotion is extremely slow if made simply upon completion of the term of service in each rank prescribed by the code. Each fall maneuver, however, gives the ambitious young officer a chance to distinguish himself before his superiors. At regular intervals special problems as tests of intellectual efficiency are assigned to all officers up to the rank of captain, the solution of which are sent to the officers of the General Staff and often made the bases of promotion.

War academy.—In addition to this, young officers have the option of applying for admission to the war academy at Berlin. The examination required for admission is very severe. The school is conducted by the General Staff, the Kaiser himself taking a very active part in its management. The instruction centers about the theory and practice of military strategy and tactics, the principal purpose of the school seemingly being the discovery of those most highly gifted along these lines. The average man is generally dismissed after a year or two and only the most promising candidate retained for the full three-year course. The graduates are considered likely candidates for positions on the General Staff, in the war ministry of the State, or for all the higher commands in the army.

General staff.—For a time at least the successful graduate of the war academy is appointed to the General Staff. This body, which has complete control over the army and is responsible to the Kaiser alone (for there is no imperial war ministry in Germany), differs from similar organizations in other countries in that it continually changes its constituency. Wholly at the discretion of the Chief of Staff officers are chosen and retained for shorter or longer periods, ranging from one to fifteen years or longer.

Functions.—The duties of the General Staff are assigned to different departments, and consist principally in—

(1) "Procuring the fullest obtainable information about the organization and the changes occurring in all the armies of the world;

(2) "Preparations of every kind to keep the army in a permanent state of readiness for war;

(3) "Perfecting the means of transportation for the army in the event of war, especially the railroad lines of strategical importance."

There are also departments for topographical surveys of the empire, for military history, geography and the like.

JAPANESE SYSTEM

Compulsory universal service.—Service in the army or navy is universal and compulsory. Liability commences at the age of 17 and extends to the age of 40, but actual service begins at 20.

Divisions of service.—All physically capable of bearing arms are divided into two classes, the "fit" and the "absolutely fit."

Geneki.—The number necessary for the first line or active army, called the *Geneki*, are taken solely from the absolutely fit. Service in the ranks is two years for the infantry, three in all other arms and either four (or five) years and four months in the reserve. Reservists are called out twice for training during their reserve service, for sixty days on each occasion.

Kobi.—After completing seven years and four months in the first line, including its reserve, men are transferred to the second line, called *Kobi*. Service in the *Kobi* is for ten years, with two trainings of sixty days each in the whole period.

Kokumin.—At the end of their *Kobi* service the men are in their 38th year and then pass into the *Kokumin*, which is the territorial or home defense army. In this they serve two years and eight months, to complete their total service of twenty years.

Hoju.—The reserve for making good the waste of war is called *Hoju*. It is composed of the balance of the absolutely fit recruits not required for the first line, and of as many of those classed as fit as may be required to make up a certain fixed number. They all serve in the *Hoju* for seven years and four months, during which they have a first training of 90 days and two subsequent trainings of 60 days each. After completion of this period they are passed to the *Kobi* in which they serve for ten years.

Regional organization of army.—The Japanese Islands are divided into military districts corresponding to the divisions of the army and the district is the unit of administration as well as of territorial command. Each division is supplied with recruits from its own district, except the Guards, whose infantry recruits are selected from the whole country.

Strength of army.—No returns of the peace strength of the active Japanese army are published.

ENGLISH SYSTEM

Voluntary enlistment.—Service in both the Regular and the Territorial army is by voluntary enlistment.

Regular army.—On a peace footing the Regular Army is composed of the permanently embodied troops, the Army Reserve, and the Special Reserve.

Service in the permanently embodied portion of the Regular Army and the Army Reserve is for twelve years, with permission to extend to twenty-one years in certain circumstances. Of the original twelve years, from three to nine are spent "with the colours," and the remainder of the time in the Army Reserve. Enlistment is possible between the ages of 18 and 25. The average service of infantry is seven years "with the colours" and five in the Reserve.

Expansion for war.—On mobilization for war the commands are raised to war strength from the Army Reserve, and, to a small extent, from the Special Reserve.

A large part of the Regular Army serves in the overseas dominions of the Empire, in addition to local forces known as the "Indian Army" and the forces of other dominions.

Special Reserves.—The Special Reserve was created in 1907 out of the militia, and is available for service abroad in time of war. Its officers are for the most part non-professional. The units are attached to permanent depots, and the enlistment term is six years. Recruits undergo, generally, five months' preliminary training, and the trained men are called annually for three weeks, with six days of rifle practice in addition for infantry.

Territorial army.—The Territorial Army is primarily for home defense, with enlistment age-limits of 17 to 35 years. The enlistment term is four years. The requirements for training are two weeks in camp and a number of drills varied for the different arms. Unless exempted, the soldier absenting himself from camp is liable to a penalty of 5 pounds. With the exception of certain of the generals and staff all officers are non-professional.

Administration.—The land forces are administered by an Army Council, composed of the Secretary of State for War and the heads of the six departments in the War Office. The Territorial Army is under County direction, the War Office maintaining general control of expenditures.

Regular officers.—Officers are commissioned by Royal appointment after education prescribed: for the artillery and engineers in the Royal Military Academy; for the cavalry and infantry in the Royal Military College, and for the Staff in the Staff College. The Officers' Training Corps, in two divisions representing the universities and the public schools, provides officers for the Special Reserve and the Territorial Army.

Size.—Effectives, reported as of January 1, 1914, were as follows: Regular Army, 156,000; Reserve Army, 147,000; Special Reserve, 63,000; Territorial Army, 252,000; British Army in India, 78,500.

METHODS AND CONTENT OF COURSES IN HISTORY IN THE HIGH SCHOOLS OF THE UNITED STATES

HUGO H. GOLD
State University of Iowa

PART II. METHODS AND MATERIALS USED IN HIGH-SCHOOL HISTORY[1]

INTRODUCTION

a) *The questionnaire.*—The material for Part II of this article was obtained from a questionnaire sent to 480 high schools selected at random from the cities as listed in the *Educational Directory* published by the United States Bureau of Education.

Name of Teacher_____ Address_____

1. How many volumes in your high-school library? How many volumes on history?
2. What percentage of your high-school pupils are enrolled in history courses?
3. What methods are used in the teaching of history, e.g., topical, chronological, etc.? How do you use the text?
4. Do you require collateral reading?
   a) What amount relative to the text assignments?
   b) In what year of the course do you require most?
   c) How many pages? 1st year? 2d year? 3d year? 4th year? If unable to state definitely indicate here:
   Very little? Considerable? Much?
   Do you emphasize intensive or extensive reading?
5. Give classification and character of collateral reading: e.g., to what extent are references made to:
   a) Texts similar to the one in use?
   b) The more extensive works?
   c) Poetry?
   d) Historical fiction?
   e) Biography? If so, what?
   f) Magazines, newspapers, etc.?
   g) Other materials.
6. By what methods do you test the collateral reading?

[1] Part I appeared in the *School Review*, February, 1917.

7. Do you consider collateral reading by pupils an important part of the work in history? Please give reasons:
8. Do you require written reports? Oral reports?
   How often? Of what character?
9. Do you require the use of a permanent notebook in all courses? If not, give reasons.
   What do you require to be entered in it?
   Is it examined and graded by teacher? How often?
   What do you consider are the advantages and disadvantages of keeping a notebook?
   Please give any suggestions you have found helpful.
10. Do you use source materials? To what extent?
    In what manner?
    Character of sources used?
    Aim or purpose?
11. Is map drawing required in all history courses? How many maps?
    How are they prepared?
    Data entered in them?
    Purpose?
12. What special devices are used to aid in locating and correlating events in time?
13. To what extent do you require the memorizing of dates?
14. What special devices are used in the teaching of civics to secure concreteness and motivation?
15. Do you attempt to correlate history with other subjects? If so, what and by what methods?

Make any additional suggestions regarding devices, method, etc. which you consider helpful in the teaching of history, and which have proven successful in your work.

In response to this questionnaire 135 replies were received from teachers representing 60 high schools or high-school systems in the North Central states, 30 in the North Atlantic, 30 in the Western, 11 in the South Central, and 4 in the South Atlantic states. The data on each question will be treated in exactly the same order as treated in the questionnaire, each question being considered as a separate unit.

b) *Supplementary material.*—The median as well as the modal high-school library contains 1,500 volumes. The modal number of volumes on history was 200, the median 300. Historical works constituted approximately one-fourth of the total volumes in the libraries. The Commission on Accredited Schools and Colleges of

the North Central Association of Secondary Schools and Colleges recommends that the minimum number of volumes on history a high-school library should contain is 175, well chosen—20 volumes on ancient, 25 on mediaeval and modern, 50 on English, and 75 on American history. The facts are that not one-half have reached this standard for the minimum requirement.

c) *Number enrolled in courses in history.*—This question was answered by 129 teachers, the answers show a variation of from 20 per cent to 100 per cent, the mode being 50 per cent. This shows that at any given time approximately one-half of all high-school pupils are enrolled in history courses.

METHODS OF TEACHING HISTORY

It seems that the most prevalent methods are "topical" and "chronological," with the greater emphasis on the former. Only three replies mentioned the "quiz" method, but there is little doubt that this method is used by all teachers. From the small number of different methods reported it is evident that many teachers are not familiar with the technical names for the various methods of teaching. Only three teachers mentioned the syllabus and library method, while only one mentioned the problem method. In the opinion of the writer the latter method is one of the most effective means of teaching history.

a) *How the textbook is used.*—The manner of using the textbook is clearly recognized as an important factor in the teaching of history in the high school. Very few teachers are content to risk a single textbook as furnishing the only source of preparation on the part of the pupil. The tendency is to hold the student responsible for the mastery of the textbook as a minimum requirement, which is to be supplemented to a greater or less extent by outside readings on the more important topics. It is necessary to require a pretty thorough knowledge of the textbook in order that the student may get a foundation for the work, or, in other words, that he may get the necessary general information intelligently to discuss the main topics and to be able to explore wider fields.

It is a common practice to follow the textbook quite closely during the Freshman and Sophomore years, but in the advanced

courses in modern and American history the textbook serves merely as an outline. In explaining her method of using the textbook one teacher presents the following:

1. Rapid reading of the textbook by students outside of class: in assigning the lesson their attention is called to the main points they are expected to answer in class.
2. Review of the textbook by topics from the index.
3. A review chronologically of the larger phases.
4. All of this is supplemented by dictated notes and outlines, by map drawing, and by talks on the points where the textbook calls up present-day conditions; also frequent examinations.

Sometimes the textbook furnished the "thread," sometimes the material for discussion, and sometimes merely a "point of departure."

A commendable method is, after having studied the complete textbook in detail, to use the indexes in reviews for tracing topical questions. The history of the tariff, for example, may be traced advantageously in this manner.

In answer to the question, "Do you require collateral reading?" all except two teachers stated that some reading in addition to the regular textbook assignments is required of all pupils. In these two cases the pupils are encouraged to do outside reading, but are not required or compelled to do it. This question was answered by every teacher who returned the questionnaire.

b) *Amount of collateral reading relative to the textbook assignments.*—In 47 cases there was no attempt made to estimate the amount of collateral reading relative to the regular textbook assignments. In 28 other cases the answers were that the amount varies with the different years or classes with no quantitative estimate for the specific years. Only 10 say the amount of collateral reading exceeds the textbook assignments. There seems to be no standard as to the amount of collateral reading which should be required. The largest amount is usually required in the third and fourth years of the course. In 5 schools, however, the greatest amount of supplementary reading is done in the Freshman year. The reason given for this was that it accustoms the pupil to the historic method, preparing him for more effective work in later years. There is tremendous variation in the amount of collateral reading required in the Freshman and Sophomore years, the amount varying from none to thirteen hundred pages. In the Junior and Senior years

the amount varies from none to fifteen hundred pages. Such wide variability in practice indicates that pupils coming from one high school receive a vastly different sort of training from those coming from another.

The Commission on Accredited Schools and Colleges of the North Central Association specifies a minimum amount of collateral reading, which is to be carefully selected, at least one-fourth of this amount to be source material: (1) ancient history, 200 pages; (2) mediaeval and modern history, 150 pages; (3) English history, 300 pages; (4) American history, 350 pages. Only 19 schools require more than the minimum amount in ancient history, 34 in mediaeval and modern, 26 in English, and 28 in American history. Approximately 30 per cent of those making a definite estimate require less than the minimum standard of the North Central Association. The answers as a whole seem to indicate that teachers in general have paid little attention to, or are ignorant of, the specification of the Commission as given above. In one case in answer to the question, "How many pages per year?" it was sapiently remarked, "Foolish question! It is not *pages* but the 'wisdom which lingers' that we wish the student to get from collateral reading!"

c) Intensive and extensive reading.—The greatest emphasis is placed upon intensive reading, although there is a definite attempt to do some extensive reading, the amount depending upon the subject-matter and the age of the pupils. There is considerable disagreement among teachers. Eight say they go from extensive in the first years to intensive in the later years of the course, while 11 say they go from intensive to extensive.

The methods of testing collateral reading are generally class reports, oral and written examinations, notebooks, occasional themes, book reviews, report slips handed in, conferences with individual students, etc.

d) Classification of collateral reading.—In checking the relative frequency with which references are made to other secondary-school textbooks, similar to the regular history textbook and to the more extensive works, the thing which stands out most prominently is the lack of any uniformity in practice. Some contend that references should not be made to secondary textbooks, that this is

only confusing because of errors and disagreements among authors. Others have very little material for reference except secondary textbooks. Still others claim that the larger historical works and contemporaneous writings are too complicated and too detailed for high-school students. It might be suggested that students ought to become somewhat familiar with the opinions of the different authors; they should know that their own textbook is not infallible and that it does not contain all that has been written on a given subject. They should at least use the more extensive histories enough to get acquainted with the methods of writing history.

About one-half of the teachers seldom or never use poetry for collateral reading. When it is used, it is usually merely for illustrative purposes or is merely recommended or "suggested," but not required. These remarks are also applicable to historical fiction. The tendency, however, is to use a little more historical fiction than poetry.

Biography is used more than any other class of collateral reading, the tendency being to use most biography in connection with American history. The "American Statesmen Series" by Morse is a favorite reference.

Magazines and newspapers are used for collateral reading to a considerable extent, especially in advanced classes or in connection with modern and American history. It is a common practice to have a current-event day once a week, the whole class-period being devoted to the discussion of events, movements, and tendencies of the present day. Such periodicals as the *Literary Digest*, *Independent*, *Current Events*, and *Outlook* were frequently mentioned. This is a commendable practice and is in accordance with the recommendations of the committees. In this way students are brought into touch with history in the making.

Other materials used in connection with the collateral reading are mentioned by about 40 teachers. Pictures and postcards are mentioned in 24 courses in history, and 16 teachers report that they make frequent use of such material. Twelve schools seem proud of the fact that they are provided with stereopticons. Two teachers mention taking their classes to see the moving-picture shows. In a few cases teachers mention using myths and stories,

travel reports, industrial exhibits, clippings, curios and relics, old settlers' testimony, etc., for supplementary material.

There is no definite standard as to what shall constitute the collateral reading.

e) Value of collateral reading.—The following table was made in order to determine whether or not history teachers have a conscious

TABLE I

Statement of Aim	Frequency
Broadens views of the student (horizon)	49
Makes the work more interesting	37
Acquaintance with views and style of different authors	36
Training in use of books, library, card catalogues, *Poole's Index*, sources, etc.	25
Trains student in weighing values (judgment, discrimination)	22
To illuminate and supplement the text	20
Furnishes wider *general knowledge*	18
Cultivates independence in study and thought	14
Knowledge of books	11
Tends to stimulate a conservative liberalism	10
To create the habit of reading	10
Necessary in the acquirement of historical background	9
To get the setting of events and make history real and vital	8
To show how much might be known	8
To create the spirit of investigation	8
To verify the text	7
Current events are necessary to understand progress	7
To cultivate a taste for good reading	6
Furnishes maximum of information with minimum effort	6
Correlates history with other subjects and everyday life	6
Knowledge of the great authorities	5
Biography vitalizes the study	4
Fixes important topics and clinches essentials	4
An opportunity to adapt amount of work to individual pupils	3
To develop character—the moral sense	2
Reading with a point of view is liberalizing	1
Tends toward college method	1
Poetry and fiction to arouse the love of the beautiful	1
Furnishes points of contact in teaching	1
Directs one's interests in after-life	1
Broadens the vocabulary	1

purpose or definite aim in using the materials not found in the regular textbook. Only 8 of the 135 teachers fail to give an

evaluation. This table ought to be helpful to teachers in working out a clearly defined aim.

In answer to the question, "Do you consider collateral reading by pupils an important part of the work in history?" only 6 teachers answered "No," the principal reasons being, (1) that students take little interest in it because it means additional burden, (2) that it causes pupils to become superficial in study, hence it is better to master the textbook, and (3) that students are too immature. There is a general feeling on the part of many teachers that there is a danger of overdoing work of this character. The concensus of opinion, however, is that collateral reading is a very important part of effective history teaching.

One particular merit of collateral reading is the opportunity afforded to adapt the amount of work to individual pupils. A stronger pupil can often do three or four times as much reading as the weaker pupil, and if the reading is properly directed the problem of individual differences is partially solved.

Eleven teachers report that they are so handicapped by lack of time or improper library facilities that it is impossible to do much collateral reading.

Table I shows the aim or purpose of collateral reading, as evaluated by 127 history teachers.

ORAL AND WRITTEN REPORTS BY PUPILS

One custom in the teaching of history which is worthy of special mention is the opportunity given to the pupils for self-expression through the medium of formal oral and written reports. These are usually prepared by the pupils from assigned supplementary readings. Sometimes these assignments are made to the class as a whole and sometimes topics are assigned to individual pupils. This method should be especially valuable for several reasons. In the first place, it furnishes a motive for the pupil in his outside reading. The fact that the pupil is to report to the class in a formal manner the results of his research causes him to use more discrimination in his reading. He is reading with an end in view. He is confronted with the responsibility of making a contribution to the class recitation. In the second place, the pupil is conscious of the

fact that he is doing a constructive piece of work in the preparation of a formal report. Most pupils are interested in work which exercises their constructive powers. Short oral reports on special topics are used most frequently, 125 teachers saying they require oral reports and 118 mentioning written reports; 8 teachers state that they never require written reports, while only 1 teacher states that he never requires oral reports.

a) *Frequency of formal reports.*—In 19 cases there was no estimate of the frequency of formal reports. There was great range in the frequency of required formal reports, from "daily" to "only once a year." The answers were so varied that the only statement which applies is that there is no common practice. However, there is a tendency in many schools to hold pupils individually responsible for two or three more or less extensive reports each semester, either oral or written. In many instances oral reports consist of formal recitations of three to fifteen minutes' duration by individual pupils. Eight teachers state that they get better results from oral reports and that very few written reports are required. The most common form of written report is a theme of from one thousand to three thousand words, once each semester, read in class by the individual pupil. However, 12 teachers require short written reports varying in frequency from twice a month to twice a semester, while 14 teachers say they seldom require written reports of any kind.

A common practice is to have shorter and less intensive papers written in the Freshman and Sophomore years, and more comprehensive and extensive reports in the third and fourth years. In the Freshman year these themes are often of a biographical nature or dealing with some pathetic or dramatic incident. One bad practice is the custom of having the reports written up in the notebooks and never discussed in class. Such a method would have a tendency to make pupils of high-school age superficial in their work, and the teacher would have no positive knowledge that they really understood what such reports contained.

[*To be continued*]

STANDARDIZED TESTS AND THE IMPROVEMENT OF TEACHING IN FIRST-YEAR ALGEBRA[1]

H. O. RUGG
School of Education, University of Chicago
AND
J. R. CLARK
Parker High School, Chicago

D. THE FUNCTION OF ALGEBRA TESTS

Algebra tests may have two functions: (1) they provide a yardstick for measuring the results of instruction and for determining the relative efficiency of teaching and the progress that teachers and pupils are making; (2) *their more important function, however, is that of diagnosis: they reveal difficulties in learning and point out needed changes in teaching emphasis.*

1. MEASURING THE RESULTS OF INSTRUCTION IN ALGEBRA IN 27 SCHOOL SYSTEMS BY MEANS OF THE TESTS

The formal Tests I–XI have been given in the following 27 school systems:

Cities in Illinois

*Rossville	Marshall	*Carbondale Normal School
Robinson	*Lincoln	Cairo
Bradley	*Highland Park	*Benton
Pekin	*Henry	*Watseka
*Paris	Gibson City	Waukegan
*Palatine	*Divernon	*Decatur
*Oak Park	*Chicago Heights	*Joliet
*Mount Olive	Charleston High School	
*Mount Carmel	Charleston Normal School	

Cities Outside Illinois

Muskogee, Okla. *Mankato, Minn.

[1] A final report on the "Experimental Determination of Standards in First Year Algebra," made to the Mathematics Section of the University of Illinois High-School Conference, November 24, 1916. Part I appeared in *School Review*, February, 1917.

In those 17 cities marked with an asterisk the verbal tests were also given. In addition to these 17 cities the verbal tests were also given in the following four schools:

Crane Technical High School, Chicago
Parker High School, Chicago
Englewood High School, Chicago
Carter Harrison High School, Chicago

and in four schools which returned papers with no names. The number of pupils taking the tests in each school was about 50. The total number of pupils solving the formal tests was 1,182; the total number solving the verbal tests was 1,295.

From the detailed records of the results of this testing in 27 school systems we give in Tables II and III five typical sets of scores, namely, that of (1) the best school, (2) average of the upper third (9 schools), (3) the ninth school, (4) the average of all the schools (27 schools), (5) the lowest school. These five scores on each test, both for accuracy ("Rights") and speed ("Attempts"), show the range of attainment for representative algebra instruction, the best and the poorest attainment and a tentative standard (for the formal processes) which we would like to set before teachers of algebra.

The average attainment of the upper third of the 27 schools as the tentative standard of attainment in first-year algebra.—There have been many suggestions of late that the average of the entire group be taken as standard practice. We believe that the average of the entire group is too low a standard. It is contributed to by many schools of a very low instructional efficiency. On the other hand, in finding the average of some upper group we set a standard contributed to only by schools that have maintained a high level of instructional efficiency. To take the average of the upper nine schools means to discount the best attainment (of the highest school, by allowing for possible unusual conditions which might lead to the very best score), and yet to set a standard that has actually been exceeded by four, five, or six schools. In case any teacher wishes to compare her scores with those of the ninth school (whose record has been exceeded by eight schools) those scores are included here.

The tables make clear the striking differences in the speed and accuracy with which pupils manipulate different formal operations. The very large percentage of "rights" (of the problems

TABLE II

EFFICIENCY IN FIRST-YEAR ALGEBRA (RIGHTS)

Norms of attainment in eleven formal operations as determined by: (1) attainment of the most efficient school, (2) average attainment of the upper third of 27 schools, (3) attainment of the ninth school (i.e., the lowest school of the upper third), (4) average attainment of 27 schools, (5) attainment of the lowest of 27 schools.

	NUMBER OF PROBLEMS WORKED CORRECTLY PER MINUTE					
	Test I	Test II	Test III	Test IV	Test V	Test VI
Score of most efficient school	13.15	5.39	3.24	4.05	1.42	11.84
Average of scores of upper third of 27 schools	10.95	4.79	2.73	3.50	0.84	10.66
Score of ninth school	9.97	4.40 (18 schools were below this attainment)	2.44	2.94	0.53	9.85
Average of 27 schools was	9.65	3.81	2.20	2.85	0.54	9.19
Score of poorest school was	6.12	2.15	1.23	1.71	0.17	4.28
	Test VII	Test VIII	Test IX	Test X	Test XI	
Score of most efficient school	2.75	1.97*	5.28	2.76	0.86	
Average of scores of upper third of 27 schools	2.02	4.16*	3.91	1.60	0.73	
Score of ninth school	1.73	5.92* (18 schools were below this attainment)	3.35	1.19	0.62	
Average of 27 schools	1.37	7.91*	2.76	1.09	0.63	
Score of poorest school	0.51	1.97*	0.12	0.10	0.25	

* Minutes required to solve one problem.

attempted), together with the large number of problems worked per minute in the case of Tests I and VI, lead to the conclusion that present methods of *instruction in the removal of parentheses and in the use of exponents leads to satisfactory automatism of these operations.* Pupils have reduced the manipulation of the paren-

thesis to a high state of efficiency. Even in the case of exponents, however, 15 per cent of errors are made on the average.

On the other hand, the score of the poorest school was but slightly more than half that of the average of the upper nine. In

TABLE III

SPEED IN WORKING FORMAL PROBLEMS (AS SHOWN BY NUMBER OF PROBLEMS ATTEMPTED)

Norms of attainment in eleven formal operations as determined by: (1) attainment of the most efficient school, (2) average attainment of the upper third of 27 schools, (3) attainment of the ninth school, i.e., the lowest school of the upper third, (4) average attainment of 27 schools, (5) attainment of the lowest of 27 schools.

	NUMBER OF PROBLEMS WORKED CORRECTLY PER MINUTE					
	Test I	Test II	Test III	Test IV	Test V	Test VI
Score of most efficient school	14.54	6.26	4.23	4.57	3.00	13.36
Average of scores of upper third of 27 schools	11.59	5.80	3.50	4.14	1.51	12.46
Score of ninth school	10.68	5.51	3.24	3.87	1.16	11.51
	(18 schools were below this attainment)					
Average of 27 schools	10.36	4.94	3.02	3.60	1.14	11.16
Score of poorest school	6.50	2.82	2.20	2.40	0.49	7.91
	Test VII	Test VIII	Test IX	Test X	Test XI	
Score of most efficient school	3.47	1.44*	7.27	4.19	1.08	
Average of scores of upper third of 27 schools	2.88	2.50*	5.80	3.23	0.95	
Score of ninth school	2.63	3.87*	5.23	2.82	0.83	
		(18 schools were below this attainment)				
Average of 27 schools	2.35	3.05*	4.85	2.71	0.81	
Score of poorest school	1.40	1.44*	2.88	1.48	0.47	

* Minutes required to do one problem.

fact, in all remaining tests, the score of the poorest school is *less than half* that of the average of the upper third. In some it is only one-fifth to one-sixth of the standard score. Such low levels, combined as they generally are with low efficiency in "translation"

processes (see Table III), certainly *call for closer supervision of instruction.* As pointed out in last year's report, *they indicate, in some cases at least, a lack of teaching emphasis on certain operations with a corresponding greater emphasis on others.* This question of teaching emphasis in the case of very good and very poor schools is further illuminated by tracing the record of individual schools in each of the different operations. If this is done, it will be found that the three poorest schools fall in the lowest third in all but 2 tests. The two best schools fall in the upper third in all but 2 of the 11 tests.

The scores for all remaining tests (except Tests I, II, and VI) point out definite lack in making automatic a skill necessary to success in using algebraic methods in original solution. Note, for example, the original scores for Test V, fractions; Test VII, quadratics; Test VIII, graphs; Test IX, radicals; Test X, practical formulae; Test XI, simultaneous equations. The upper group in each case shows what may be regarded as a fair degree of speed, but almost universally shows a woeful lack of accuracy. We believe that *instruction in these operations should lead to automatic efficiency. Under such a condition recurring mistakes in a class would be impossible, accidental mistakes would occur, but be very rare* (e.g., mistakes in reading, writing, and rare mistakes in arithmetic). The test at least reveals the results of instruction in these processes.

2. THE RELATION BETWEEN EFFICIENCY IN THE AUTOMATIC PROCESSES AND EFFICIENCY IN REASONING PROCESSES

Teachers and administrators who have been loath to adopt "measuring methods" in their school practice and who have hesitated to introduce practice exercises do so on the ground that such a procedure will "mechanize" teaching. This same skepticism has been commonly expressed as a result of the 1915 report on algebra—the point of view of the writer and the implications of the report certainly having been misunderstood. The 1916 testing was, therefore, planned to take account of this question. Seventeen school systems took the eleven formal tests and also the verbal or reasoning tests. Table IV gives the comparative ranks of each of the 17 schools in both types of test. To permit a composite

comparison of ability of the two types, the rank of each of the 17 schools has been determined for accuracy in each of the eleven tests. A tabulation was then made to give the aggregate ranks of each school. The list was then reranked, calling the school that had the lowest number of aggregate ranks 1, the next lowest 2, etc., throughout the list. The final comparison of ranks is shown in Table IV.

TABLE IV

COMPARISON OF THE RANK OF 17 SCHOOLS IN EFFICIENCY IN MANIPULATION OF THE FORMAL OPERATIONS WITH RANK OF SAME SCHOOLS IN EFFICIENCY IN REASONING TESTS

School System	Rank in Aggregate Scores Made in:		School System	Rank in Aggregate Scores Made in:	
	Reasoning Tests	All Formal Tests		Reasoning Tests	All Formal Tests
A	1	1	T	3	6
C	9	9	M	8	11
F	11	5	N	4	14
Y	16	16	P	13	2
G	14	10	Q	6	4
I	10	13	R	12	7
J	2	3	V	15	17
Z	7	8	W	17	15
K	5	12			

The first, ninth, sixteenth, tenth, second, seventh, third, eighth, sixth, fifteenth, and seventeenth schools in the "reasoning tests" occupy ranks in the "formal tests" equal to these or not displaced by more than 3 places in 17. That is, 11 of the 17 schools stand almost in the same relative position in reasoning efficiency as in formal efficiency. Of the whole 17 schools only 2 show a distinct reversal of position in the two types, schools N and P. In view of the preponderance of evidence showing high positive correlation between these two types of processes we are unable to account for the status of the data on these two schools. Of the remaining 4 schools, G is displaced four places, R, 5 places, and K, 7 places. For those interested in correlations we may say that by Spearman's footrule method (with 17 cases any coefficient has little validity, hence we may as well use a rough approximate method as the more accurate product-moment method) $r=0.59$, which may be regarded as a high correlation.

Careful study of our complete data leads us to the conviction that those teachers who have been most successful in developing skill in manipulating the formal processes have also been most successful in developing ability to "translate" verbally stated problems into algebraic symbolism. We regard this as pertinent to the question of "mechanization" of the teaching process. . . . . We believe that it emphasizes the main point we are trying to make: namely, that with carefully planned practice periods, using scientifically built-up practice material, teachers will be still more effective in developing "original ability."

Certainly, without the aid of scientifically planned practice devices, teachers who have been most successful in doing the one, have been, very generally, most successful in doing the other. We have no reason to believe, from our present detailed data, that teachers who drill their pupils to a relatively high state of "formal efficiency" do so by neglecting the higher thought processes in algebraic solution. The teachers, furthermore, have done this without the aid of carefully differentiated drill exercises. They have followed, in the main, the traditionally planned textbook organization of theoretical presentation and "problem exercises."

We take the position that much greater correlation might come about, then, through the aid of carefully designed practice exercises which put the chief emphasis in practice upon the difficult processes, saving time for more detailed training in those types of solution that call for analysis discrimination and other higher thought processes. Testing pupils' ability to manipulate algebraic operations does not lead to a general blind "mechanization" of the teaching process. It leads to an intelligent understanding of *what* operations ought to get the most drill and relatively how much they ought to be drilled—in a word, *differentiated drill takes the place of blind wholesale drill such as will ensue if one follows the textbook organization as the sole guide.*

3. THE RELATION BETWEEN SPEED AND ACCURACY IN "FORMAL EFFICIENCY"

Table V gives the rank of each of the schools in number of problems attempted and number right. The high degree of relationship between speed (represented by "number of problems

TABLE V

COMPARISON OF SPEED AND ACCURACY, AS SHOWN BY RANK OF 27 SCHOOLS IN EACH OF 11 FORMAL TESTS IN NUMBER OF PROBLEMS ATTEMPTED AND NUMBER OF PROBLEMS RIGHT

SCHOOL SYSTEM	TEST I		TEST II		TEST III		TEST IV		TEST V	
	Rank in No. Problems									
	Att.	Rt.	Att.	Rt.	Att.	Rt.	Att.	Rt.	Att.	Rt.
A	14	12	15	13	2	1	17	8	5	5
B	4	3	3	3	20.5	15	2	1	3	3
C	15	14	16	22	18.5	13	22	21	22.5	14
D	2	4	13	11	6	4	4	5	10	9.5
E	17	13	27	27	22.5	20	16	19	21	21
F	12	9.5	7.5	7	9	5	15	17	15.5	16
G	20	18	6	2	11	9	26	23	11	8
H	5	2	2	1	4	3	18	11	27	26
I	27	27	9	10	3	2	8	13	7	7
J	88	8	7.5	5	12	12	7	6	1	1
K	22	22	25.5	23	18.5	23	21	18	22.5	23
L	7	4.5	11	8	5	6	1	2	18	21
M	23	24	12	17	25	26	14	15.5	12	19
N	10	19	22	25	22.5	25	12	15.5	17	15
O	26	25	25.5	24	27	24	20	20	24	21
P	19	16	20	14	15	11	5	4	9	4
Q	1	1	1	4	7	18.5	6	10	4	6
R	18	17	4	15	16	18.5	11	14	2	12
S	6	6	5	6	14	7	3	3	15	11
T	25	23	24	20	1	14	27	27	14	18
U	16	20	21	21	8	8	10	9	8	9.5
V	24	26	17	19	26	27	25	26	26	25
W	13	15	19	18	17	22	23	25	25	27
X	9	11	14	9	10	10	24	24	13	24
Y	21	21	23	26	20.5	21	19	22	19	17
Z	3	5	10	12	11	17	9	12	20	13
$	11	7	18	16	24	16	13	7	6	2

	TEST VI		TEST VII		TEST VIII		TEST IX		TEST X		TEST XI	
	Rank in No. Problems											
	Att.	Rt.	Att.	Rt.	Att.	Rt.	Att.	Rt.	Att.	Rt.	Att.	Rt.
A	18	6	11	2	19	11	5	2	23	6	10	9.5
B	2	27	1	1	2	6	1	1	1	1	2	1
C	9	12	23	23.5	16	16	16	12	2	7.5	25	23
D	4	4	18	14	24	26	12	7	18	14	12	12
E	24	22	25	27	22	2	24	26	12.5	15	23	19.5
F	15	13	10	7	12	13	17	16	9	9	1	4
G	25	23.5	27	25.5	26	22	23	14	21	18	20.5	11
H	26	25	9	4	10	7	3	3	12.5	16.5	14	7.5
I	23	16	24	20	9	9	6	8	25	11	20.5	18
J	6	8	7	13	5	5	11	10	6	16.5	5	7.5
K	7	7	4	8	1	1	25	24	26	26	9	13
L	8	9	8	15	18	4	2	9	10	24	8	21

TABLE V—*Continued*

School System	Test VI		Test VII		Test VIII		Test IX		Test X		Test XI	
	Rank in No. Problems											
	Att.	Rt.	Att.	Rt.	Att.	Rt.	Att.	Rt.	Att.	Rt.	Att.	Rt.
M.....	14	10	5	17	4	12	18	19	5	10	7	15
N.....	10	11	20	10	20	15	26	25	24	23	16.5	16.5
O.....	22	20	19	18	25	23	10	6	19	5	27	27
P.....	13	5	16	5	6	10	13	4	8	4	11	6
Q.....	12	23.5	3	6	15	19	9	5	16	19	4	2
R.....	17	14	15	12	8	6	14	18	7	12.5	6	3
S.....	1	3	2	3	13	18	22	20	3	2	20.5	14
T.....	21	21	13	9	243	8	15	13	20	12.5	16.5	19.5
U.....	20	15	17	16	14	24	20	22	15	7.5	24	25
V.....	27	26	26	21	.....	.....	19	23	22	21	26	24
W.....	16	19	21.5	22	17	25	8	17	17	25	14	22
X.....	11	18	6	11	7	20	7	11	4	22	3	5
Y.....	19	17	21.5	23.5	11	14	.....	.....	.....	.....	20.5	16.5
Z.....	3	2	13.5	19	21	21	4	15	14	20	18	22
*.....	5	1	13.5	25.5	23	17	21	21	11	3	14	9.5

attempted") and accuracy (represented by "number of problems right") will be evident to the reader. The schools ranking high in speed are very generally the schools ranking high in accuracy. In Test V, which we will take at random, the footrule correlation gives R=0.70 or r=0.89 by Spearman's transmutation formula. By supplying the detailed data in Table V we do not need to discuss the material in detail here. The conclusion is clear that speed and accuracy in these formal operations go hand in hand.

We feel that this point is of great importance in the methodology of teaching. From individual experimentation in the classroom, the writers are convinced that *speeding up class work conduces to greater accuracy in the manipulation of formal operations.* The results of testing pupils in 27 schools confirm our classroom experience.

Thus the teaching program that we would lay before teachers is contributed to by the findings of the last sections: First, *drill pupils daily in the formal operations by stressing the most difficult and the most important processes.* (As a result of our investigation we know the most difficult processes, and they will be taken up in the next section. We do not know the *most important processes* however. The Illinois Committee on Standards has set as one

of its tasks for the next year of research the determination of the answer to this question.) Secondly, drill pupils under "time conditions." *It should be made "second nature" to manipulate the different formal operations under the pressure of "time." Life situations continually demand it—the school should constantly prepare for it.* Again classroom experimentation of blackboard and seat work done by the writers leads to this conclusion.

At this point let us call to mind the steps of our general program. We have stated the aim and outcome of teaching algebra; classified the content carefully into fundamental operations and types of problems; designed tests for each fundamental operation and for verbal problems, establishing definitely our principles of design and procedure; given the tests to large groups of pupils; set up tentative standards of speed and accuracy for each operation and made it possible to compare the practice and efficiency of a teacher or a school with the efficiency of the "best schools"; discussed the "yardstick" function of tests, the relation between formal efficiency and reasoning ability, and the *relation* between speed and accuracy.

4. THE CHIEF FUNCTION OF STANDARDIZED TESTS IN FIRST-YEAR ALGEBRA: DIAGNOSIS

We said that tests have two functions: (1) measurement of abilities in order to establish norms and compare attainments; (2) diagnosis of difficulties of individual pupils. The greater of these two functions is the latter.

We are primarily interested in ways and means of improving instruction in first-year algebra—only incidentally interested in establishing standards or norms of attainment. The norm of attainment is of value only as it spurs the teacher to a high standard of class-teaching; the test is of value only as it points out principal typical difficulties that pupils face in learning algebra. If it is properly designed, that is, if it measures *specific processes*, it can be made to do this.

Pupils' errors in first-year algebra.—Pupils make two principal kinds of errors: (1) accidental errors (i.e., errors of reading, writing, following directions, arithmetic, etc.), and (2) recurring errors.

Recurring errors supply a means of determining exactly which types of problems, operations, or processes pupils have not mastered provided the tests are rigidly designed on the "cycle" or "rotation" principle. Thus, in diagnosing difficulties in "learning," *it is the recurring errors that are significant.* They reveal which types of operation have not been mastered. The *Standardized Tests* submitted herewith, designed as they are on the principle of recurring types of operation *reveal exactly which are the typical difficulties pupils face.*

Table VI gives a complete list of recurring errors made by 100 pupils on each of the 11 formal operations, together with the frequency of occurrence and the percentage that the recurring errors of each particular type are of all recurring errors made.

This list is complete for the pupils whose work was studied. It has been compiled by the writers of this report, who scored and judged carefully every problem on each of the 11 tests for each pupil. In many cases the combined judgment of the two writers was made on particular errors. The list can be used by teachers as a definite guide to help eliminate these particular errors on the part of their pupils. Knowledge as to which are the most difficult operations will lead to wise methods of eliminating the errors in such operations.

Let us summarize *the outstanding facts concerning the recurring errors made on formal operations.*

Test I. *Removal of parentheses.*—A fairly high degree of efficiency was maintained. Of the mistakes that were made, one-half were in the use of signs. Of these, twice as many were made when the − sign was used outside the parentheses as when the − sign precedes the first letter inside (with + sign outside). (The writers' drill exercises take account of this.) One-sixth of all pupils make an arithmetic mistake on this problem.

Test II. *Special products.*—One-fourth of all recurring mistakes are on cross-products. This is also confirmed by predominance of error No. 14 in Test IV. A very large group of pupils fail to square the literal factor when the exponent is greater than 1, and another considerable group use the product of two numbers instead of twice the product.

TABLE VI

COMPLETE LIST OF "RECURRING ERRORS" FOR EACH TEST, TOGETHER WITH FREQUENCY AND PERCENTAGE OF OCCURRENCE

Each error in this list has occurred more than once upon the paper of some pupil. The numbers in the first column opposite each error, indicate the *number of pupils* [out of a "random selection" of 100] who made that particular error *one or more* times in the test. The numbers in the second column indicate the percentage of all pupils who make "recurring errors," who made that particular error.

No. of Error	Tests	I No. Pupils Making Error One or More Times	II Percentage of All "Recurring Errors"
	TEST I		
1	Arithmetic errors: $24 \cdot 8 = 182$; $18 \cdot 0 = 18$...	15	35.7
2	Omission of symbols, signs, or terms: $6(3x+8) = 18+48$.....	6	14.3
3	Errors of reading or writing: $(2x-3)^2 = 4y^2-12x+9$.....	.....	.....
4	Errors in use of signs in multiplication		
	a) Minus sign preceding ( ): $-4(3x-4) = -12x-16$.....	14	33.3
	b) Minus sign preceding first term within ( ): $9(-7x-1) = 63x-9$.....	7	16.7
	TEST II		
1	Arithmetic errors.....	5	6.6
2	Omission of symbols, signs, or terms.....	1	1.3
4	Errors in use of signs in multiplication	10	13.4
5	Errors in use of signs in addition: $(x+3)(x-4) = x^2+x-12$.....	2	2.6
6	Errors in cross-products: $(a-4)(a+5) = a^2-20$.....	20	26.7
	(NOTE.—It may be due to carrying over rule for product of sum and difference; made by pupils who got product of sum and difference correctly.)		
7	Use of product of two numbers instead of twice the product: $(2x-3)^2 = 4x^2-6x+9$	9	12.0
8	Inability in specific operation tested.....	15	20.0
9	Failure to square literal factor with exponent greater than 1: $(a^2+3)(a^2-3) = a^2-9$	13	17.4
	TEST III		
1	Arithmetic errors.....	33	47.8
8	Inability to grasp principle of substitution..	3	4.4
16	Squaring product of literal factor instead of the one designated: $ab^2 = (3 \cdot 2)^2 = 36$ if $a=3$, $b=2$.....	22	31.8
11	Using exponent as coefficient and vice versa: $x^2 = 10$ if $x=5$.....	2	2.9
12	Adding factors instead of multiplying them: $3xy = 3+5+2$ if $x=5$, $y=2$.....	9	13.1

TABLE VI—*Continued*

No. of Error	Tests	I No. Pupils Making Error One or More Times	II Percentage of All "Recurring Errors"
	TEST IV		
2	Omission of factors	4	4.3
3	Errors in writing	7	7.4
4	Errors in use of signs in multiplication	2	2.1
8	Positive inability to factor	37	39.4
13	Incorrect division by monomial factor: $5x^2+15x^3=5x^2(3x)$	1	1.1
14	Factors such that the sum of the cross-products are incorrect: $5x^2+16x+3=(5x+3)(x+1)$	20	21.3
15	Factors give correct first and second term, but incorrect third: $a^2+10a+24=(a+8)(a+2)$	4	4.3
16	Failure to recognize monomial factor: $6a^2+9a^3=(2a+3)(3a+3a^2)$	14	14.8
17	Failure to get *highest* monomial factor: $12y+18y^4=2(y+9y^4)$	5	5.3
	TEST V		
1	Arithmetic errors	28	18.4
1a	Arithmetic error of this type: $-n\cdot 0=n$	8	5.2
3	Error in writing	3	1.9
4	Errors in use of signs in multiplication	4	2.6
5	Errors in use of signs in addition	28	18.3
8	Inability in specific operation tested	27	17.7
18	Failed to change signs if numerator preceded by $-$ sign: $\frac{4x-2}{3}-\frac{x-3}{4}=0$; $16x-8-3x-9=0$	27	17.7
19	Multiplied only one side of equation by L.C.M.: $\frac{3x}{4}+\frac{3x}{2}=5$; $3x+6x=5$	16	10.5
20	Error in use of sign in transposition: $3x+2=6$; $3x=6+2$	4	2.6
22	Error in division (result inverted, e.g., $13x=-1$, $x=\frac{-13}{1}$)	1	.6
23	Multiplied numerator by L.C.D. (e.g., $\frac{2}{2-x}-\frac{5}{2+x}=0$; $4-2x-20+5x^2=0$)	7	4.6
	TEST VI		
1	Arithmetic errors	11	8.0
3	Error in writing	6	4.4
8	Inability in specific operation tested	21	15.3
25	Incorrect use of exponents in multiplication:		
	a) Multiplying exponents instead of adding them: $a^3\cdot a^5=a^{15}$	9	6.5
	b) Subtracting exponents instead of adding them: $x^7\cdot x=x^6$	4	2.9
	c) Failure to add $x^7\cdot x=x^7$	1	0.7

TABLE VI—*Continued*

No. of Error	Tests	I No. Pupils Making Error One or More Times	II Percentage of All "Recurring Errors"
	TEST VI—*Continued*		
26	Incorrect use of exponents in involution		
	a) Adding instead of multiplying: $(x^3)^4=x^7$	45	32.4
	b) Subtracting instead of multiplying: $(x^3)^4=x$	1	0.7
	c) Dividing instead of multiplying: $(x^3)^4=x^{\frac{3}{4}}$	3	2.2
	d) Raising to a power instead of multiplying: $(x^3)^2=x^9$	18	13.1
	e) Failure to raise all possible factors to required power: $(ab^2)^3=(ab^4)$	16	11.6
27	Incorrect use of exponents in division		
	a) Adding instead of subtracting: $\frac{c^3}{c^2}=c^5$	1	0.7
	b) Multiplying instead of subtracting: $\frac{y^5}{y^4}=y^{20}$	2	1.5
	TEST VII		
8	Inability in specific operation tested	32	21.6
28*a*	Find only one root: $x^2-81=0$; $x=9$	28	19.0
b	One root correct; other incorrect: $y^2+y=6$; $y=-3$ or -2	2	1.3
14	Incorrect solution due to: factors such that sum of cross-products is incorrect: $n^2-7n=12$; $n=6$ or 2	71	48.0
29	Incomplete, e.g., $x^2-81=$, $x-9=0$, $x+9=0$	9	6.0
30	Incorrect use of formula method of solution	5	3.4
31	Solution by factoring left member; right member not 0: $n^2-7n=12$, $n(n-7)=12$	1	0.7
	TEST IX		
1	Arithmetic error	14	9.7
8	Inability in specific operation tested	88	60.6
24	Incomplete: $\sqrt{8}=\sqrt{4}\times\sqrt{2}$	2	1.4
32	Left factor of same power as degree of radical: $\sqrt{32}=2\sqrt{8}$; $\sqrt{a^3b^4}=b^2\sqrt{a^3}$	23	15.9
33	Error in factoring; perfect square factor correct, other incorrect: $\sqrt{32}=4\sqrt{4}$; $\sqrt{50}=5\sqrt{5}$	4	2.8
34	Does not multiply numerator by rationalizing factor: $\sqrt{\frac{1}{3}}=\frac{1}{3}\sqrt{3}$	8	5.5
35	Failed to take square root although factoring correctly: $\sqrt{x^5y^8}=x^4y^8\sqrt{x}$	2	1.4
36	Factored correctly, took square root correctly; placed radical sign over wrong factor: $\sqrt{a^5b^4}=\sqrt{a^3b^2}\cdot a$	4	2.8

TABLE VI—*Continued*

No. of Error	Tests	I No. Pupils Making Error One or More Times	II Percentage of All "Recurring Errors"
	TEST X		
3	Error in writing	4	2.5
8	Inability in specific operation tested	12	7.5
20	Errors in use of signs in transposition	4	2.5
22	Error in division, result inverted: e.g., $V=lwh$, $w=\frac{hl}{V}$	44	27.3
24	Incomplete	1	0.6
37	Transposing factors instead of terms: $V=Lwh$; $w=V-Lh$	12	7.5
38	Interchanged factors of both sides of equation: $E=\frac{PL}{K}$; $P=\frac{EL}{K}$	30	18.6
39	Error in selecting coefficient of the unknown in $L=\frac{Mt-g}{t}$, $M=\frac{Lt}{t-g}$ (considers $(t-g)$ as coefficient of M)	51	31.6
40	Divides a term of numerator by the denominator: e.g., $L=\frac{Mt-g}{t}=M-g$	3	1.9
	TEST XI		
1	Arithmetic errors: $3\cdot 21=73$	25	50
1a	Arithmetic errors of the type $n\cdot 0=0$	1	2
3	Errors in writing	4	8
8	Inability in specific operation tested	3	6
19	Multiply only one side of equation by L.C.M.	2	4
20	Error in use of signs in transposition: $6x-4=10$; $6x=6$	3	6
23	Multiply numerator by denominator in clearing fraction	1	2
24	Incomplete (e.g., $-y=-3$)	2	4
41	Errors in use of signs in subtraction: $\begin{cases}10x-15y=65\\10x+6y=78\end{cases}$; $-9y=-63$	4	8
42	Errors in use of signs in division: $-12x=24$; $x=2$	1	2
43	Adds left member, subtracts right member or vice versa: $\begin{cases}4x+2y=20\\3x-2y=1\end{cases}$; $7x=19$	3	6
44	Adds corresponding members when he should subtract: $\begin{cases}2p+10q=54\\2p-3q=2\end{cases}$; $7q=52$	1	2

We may dispose once for all, of the error marked No. 8 in each test, "positive inability in the specific operation tested."

We give below the percentage of all errors that were made, which show inability to use the operation in question in each test.

Tests	Percentage	Tests	Percentage
2	20	7	21.6
3	4.4	9	60.6
4	39.4	10	7.5
5	17.7	11	6
6	15.3		

This table reveals that there is a very large number of our pupils that are absolutely unable to handle certain combinations of the following operations: special products, factoring (complete quadratic), fractions, exponents, quadratics, and radicals. This percentage, it should be noted, may be deceptive, for in some cases it includes only a small proportion of all errors made. It is striking at least as showing the cases in which positive inability to do the problems stood out.

Test III. *Substitution.*—Relatively few errors. Of those that were made, nearly one-third are due to "squaring product of literal factors instead of one designated." Practically half of all errors are arithmetic.

Test IV. *Factoring.*—Thirty-nine per cent of all recurring errors show positive inability to factor particular types of factoring problem (mostly complete quadratics). The outstanding errors are found to be error numbers 14, "factors such that sum of cross-products is incorrect," and 16, "failure to recognize monomial factor."

Test V. Errors in the use of signs again predominate, e.g., in addition and in multiplication failure to change signs if numerator is preceded by $-$ sign. Also need for emphasis on multiplying both sides of equation by L.C.M.

Test VI. There are three outstanding errors in the use of exponents—incorrect use in involution (adding instead of multiplying, raising to power instead of multiplying, and failure to raise to required power). There are other scattering errors which recur rather frequently.

Test VII. Pupils are prone to find only one root. Their most outstanding mistake again is in cross-products—getting factors such that sum of cross-products is incorrect.

Test IX. Sixty per cent of all recurring errors show positive inability to handle particular kinds of radicals, e.g., of the type $\sqrt[2]{3}$ especially. Of the other recurring errors, pupils commonly leave factor of same power as degree of radical. They also do not multiply numerator by rationalizing factor.

Test X. Three typical recurring mistakes: (1) errors in division, results inverted, e.g., in $v=lwh$, $w=\frac{hl}{v}$; (2) interchanging both sides of the equation; (3) errors in selecting coefficient of the unknown, e.g., in $L=\frac{Mt-g}{t}$, $M=\frac{Lt}{t-g}$, pupil considers $(t-g)$ as coefficient of M.

Test XI. Aside from purely arithmetic errors, the solution of simultaneous equations of the type represented here has been rather well automatized. Errors in use of signs stand out again. We would like to call particular attention to the frequency of recurrence of errors in the use of signs in all tests where they are possible.

Methods of "differentiated" drill will improve instruction in the formal processes.—The giving of standard tests is only a first step in the program of improving instruction. The tests, however, if corrected by the teacher will lead to definite knowledge as to the types of problems upon which she needs to drill her pupils. Great insight can be obtained by the teacher into the difficulties of her pupils if she will take the trouble to examine the tests carefully and classify the mistakes made. Typical recurring ones will stand out clearly and these she can drill upon *in a differentiated way.*

The working out and giving of the Standardized Tests have offered the writers an opportunity to extend their service to teachers of algebra with a thoroughgoing and complete classification of the recurring errors made by pupils. The tabulation and discovery of errors are being followed up by the careful design of drill exercises to aid in the elimination of the weaknesses in learning. This in turn is being supplemented by thorough experimentation to

determine the frequency with which particular operations should be drilled, the distribution of the different types of arrangement in the different exercises, best ways of presenting material, etc. Thus the fifth step in our program has just been taken.

We are now organizing a thoroughgoing experiment in the Parker High School, Chicago, and in a group of co-operating high schools in and about Chicago, in the attempt to do the things outlined above. Practice exercises have been organized in a tentative way, separate exercises for each operation.[1] Those exercises have emphasized the most frequently recurring errors roughly in proportion to their difficulty.

From this point on real progress in improving algebra instruction can be made only by teachers of the subject working in their classrooms. We urge, therefore, the undertaking of a very thorough co-operative experiment by teachers of algebra along the lines marked out by this report. We wish to enlist the co-operation of all teachers interested in the attempt to improve the teaching of algebra along the lines suggested herewith. A definitely worked out experimental plan of trying out various ways of teaching algebra will be mailed to anyone interested enough to take part in a co-operative way. Complete records of the conduct of the experimental work will be kept and reported in the pages of this journal next year.

[1] Sample sets of practice exercises with prices may be secured from H. O. Rugg, School of Education, University of Chicago. They will be sold at the cost of publication and handling.

EDUCATIONAL NEWS AND EDITORIAL COMMENT

Military Drill

In this number the *School Review* presents several important articles concerning military training in public schools. Local interest in the Middle West centers around an accomplished fact: the inauguration of the so-called "Wyoming plan" in several Chicago high schools, under the direction of Captain E. Z. Steever, of the United States Army, and an imposing corps of technically trained assistants. Other cities in the central military district may also decide to avail themselves of the same opportunity. School men will be glad to read Captain Steever's article which appears as the first number of the present issue. Captain H. L. Durborow, of Culver Military Academy, also speaks authoritatively of military education, especially in schools frankly given over to a far more rigid inculcation of that discipline than can reasonably be anticipated in public schools.

No less important are the two articles which, with due reservations, may be said to point out the negative side of the case. Leonard P. Ayres, of the Russell Sage Foundation, and D. C. Bliss, of the Montclair, New Jersey, public schools, are well qualified to represent conservative men who feel that the present time of stress is likely to overemphasize both the necessity and the real advantages of military drill. Moreover, educators who have not had occasion to read entire the admirable report of the Massachusetts Commission on Military Training will welcome the opportunity to see the portions of that report most pertinent to the immediate issue: namely, the testimony of several important witnesses, and the commission's final statement adverse to military training in the schools.

Finally, the article setting forth in compact form the essential features of national military service in France, Germany, Switzerland, Australia, Japan, and England, may be helpful to anyone who is conscientiously attempting to place himself right in one of the supreme questions of the hour.

Basic considerations calling for preparedness

Underlying the entire discussion for preparedness there appears to be a series of fundamental truths which very few sane men dispute.

1. The isolation of the Peace Palace in The Hague, in a little country armed to the teeth to defend her neutrality, which either of the contending parties could, and possibly would, crush, if it were to their immediate advantage, is typical of the standing which peace conferences, international arbitration, and national treaties occupy in the world today.

2. The "splendid isolation" of our nation of 100,000,000 is a thing of the past. Three thousand miles of Atlantic Ocean have not been able to keep us from the verge of war, even though our councils have been led by a patience, forbearance, and endurance that speak for themselves. Indeed, before these words go to press, we may be, technically at least, at war.

3. Lulled by the foolish dreams of men in whose minds "a million men will spring to arms over night," we are almost totally unprepared. General Wood fittingly characterizes the situation: "A wolf was never frightened by a flock of sheep."

4. To meet this situation we need at once the large and efficient navy which we have on paper, but not available for action; we need also the power to raise and thoroughly equip against emergency a body of men proportionate to our size and potential strength. The woeful experiences of 1908 and 1916 stare us in the face.

5. We live in a world in which two large nations only, China and the United States, are inadequately armed for warfare. Moreover, it is a world in which good intentions are often ruthlessly trampled under foot. Large nations, even, may be called upon to swallow indignities which if endured in private life would stamp a man a craven.

No one knows the future. If, when peace comes, future wars are to be made impossible, those nations which are powerful will have a powerful voice. Against that time it would be highly becoming for the United States to have a military establishment ready for use, or ready for the scrap heap when assured world-peace comes.

BEARING ON MILITARY TRAINING IN SCHOOLS

In a spirit of an honest patriotism which would have the United States strong that she might become a more potential champion of the rights of all weak and oppressed peoples, as well as of her own, the *School Review* subscribes to a belief in the truth of the basic truths listed above.

Now a serious proposal for military drill in the public schools needs to face the vital fact that relatively very few schoolboys would be called

to arms, at the first call, in a time of crisis. A glance at the experience of European armies shows that men between twenty and thirty are the flower of fighting men. Again, the training given large groups of schoolboys could be nothing more than the simplest elements of the manual of arms, maneuvers, and handling of small arms, supplemented perhaps in a few cases by summer camps for more advanced experience. But modern warfare has rendered almost insignificant the use of small arms, and at best open field tactics are subordinate. In fine, however chagrined a serious American may be over our present impotency, we must not be stampeded into seeing a way out by giving a few tens or hundreds of thousands of schoolboys the elements of military drill.

For the present world- and national crisis military drill in the schools has little if any meaning. The gain to our actual fighting strength would be nil.

THE QUESTIONS UPON WHICH THE DESIRABILITY OF MILITARY DRILL RESTS

If, then, we must discard any idea that drill in the schools would furnish fighters for the present emergency, upon what other grounds, if any, can such training be justified?

1. If it becomes necessary for the United States to adopt a system of universal military service, could a reasonable portion of the training be interwoven with school life in such a way as to save boys time and the government money?

2. General Wood asserts that military training is not for war alone; that it is really a training for life. Is this true? Does or does not drill result in all-round better citizens because of habits of regularity, promptness, thoroughness, respect for constituted authorities, rights of others, the law, the flag, and the like?

3. It is generally admitted that military discipline is the very essence of obedience. Is President Eliot right in maintaining that subservience to rigid orders is least to be desired for young boys on the ground that it curbs their individuality? Even if this were true, can we in America afford to sacrifice a little independence of individual action in order to secure loyalty, steadiness, devotion, centering around love of country? Of course this question involves still another antecedent question: Could such drill as the public schools offer nurture these patriotic virtues?

4. Vigorously George P. Arps has voiced the argument that civilized nations have nourished the powerful inherited tendencies of destruction; that histories give space to brutal acts; that in "movies," in the press,

in pictorial weeklies, we "nurse the slow-consuming fire which ultimately rocks the temple of international justice." Is this true? Is it true that drill such as the schools could give would nourish that flame? Is it thinkable that our democracy could become enamored of war, even if we gave a large body of youths an impetus toward the military profession?

5. Sargent and others effectively reiterate one argument which, so far as the *School Review* knows, is seriously denied by no one. They say that military drill is far inferior to well-managed physical-training courses in developing sound and vigorous bodies. No one disputes their contention. But the real issue, as the *School Review* has often pointed out, is, What reason have we to hope that thorough physical-training courses will become general? If they should, would the boys be enthusiastic in carrying them through? For stronger bodies is military drill *better* than nothing? Might it not actually be true that drill can be made to have the virtues claimed for it by Captain Steever? These are the issues upon which a thoughtful man must decide before he makes up his mind to oppose or befriend military training for the schools. On every one there is room for difference of opinion; the differences are well exemplified in the earlier portions of this issue. The *School Review* is frankly somewhat skeptical of the outcome, largely on the ground that military training in the state universities is so generally regarded as a bore, to be slipped through as easily as possible. Nevertheless, we believe that Chicago and other cities should give the system a fair field with reasonable chances of success. Certainly no one could doubt either the sincerity of Captain Steever and his aids, or the unbounded enthusiasm of the high-school boys.

With one quite common idea there can be little patience. Too often today it is taboo to speak of national honor and patriotism. We are even told that we must not mention too loudly the services of Washington, of Lincoln, and of McKinley, because forsooth we are likely to kindle a militant spirit. Certain mothers in Chicago last fall instructed fifteen-year-old sons to stand near the polls and to say to each voter, "We don't want to go to war, we want to stay at home with our mothers." Maternal training like that will make mollycoddles, not manly men. We believe that it is possible to teach the Golden Rule without teaching retaliation, and that America can teach manly chaps to dig a trench, handle a rifle, march in brigades, fire a machine gun, and still teach them to abhor war, except when there is a wrong to be righted.

R. L. L.

The Columbia Laboratory in Curriculum

Of importance to all interested in educational methods is the establishment of a school in connection with Teachers College, Columbia University, for the purpose of constructive work in the reorganization of elementary and secondary education. The establishment of the institution is the direct outcome of extended discussion of President Eliot's paper on "Changes in Secondary Education" and Abraham Flexner's paper entitled "The Modern School." The aim of the school will be to fit the school curriculum to the needs of modern life.

The prospectus outlines immediate departures from the established curriculum. Modern languages, English, French, and German will be stressed with a view to practical results. In connection with history, civics, and literature, experiments will be made to test the effective use of classics in translation. Latin and Greek will not be offered in the schools. Science, industry, and domestic arts will be stressed throughout the course with increased attention to music, drawing, and art. By means of contact with the natural industrial, economic, social, vocational, and domestic environment, the school hopes to create real situations for its pupils. The school will frankly discard "formal discipline" and will undertake to train its pupils through first-hand and immediately applied experience.

The board of education has been particularly fortunate in the choice of a director, Professor Otis W. Caldwell, formerly head of the Department of Natural Science in the School of Education of the University of Chicago. Professor Caldwell brings to the institution a wide range of experience in elementary school, high school, normal school, and university. He is well known to the public as the author of important books dealing with botany and general science for use in secondary schools, and is the editor of leading textbooks in agriculture for secondary schools.

This type of experimental school in connection with leading universities is rapidly superseding the traditional theoretical normal school. The curriculum of the elementary and secondary school is of absorbing interest. Not often is an opportunity afforded to work without the hindrance of tradition or the prejudice of custom. In the Columbia school the slate is clean; the factors for experiment are complete; hence the results of the laboratory in curriculum conducted by Professor Caldwell and his associates will be attended with great interest.

Brains versus Beauty

Something just a little more than a tempest in a teapot has been raised by the accusation of Mrs. Florence Vosbrink, member of the Chicago school board. Mrs. Vosbrink charges that certain high-school principals select the women on their staffs on specifications of youth, figure, and beauty, rather than experience, ability, and brains.

This accusation raises two queries, so very closely related that they really amount to one and the same: first, is the charge true, and second, if it is true, is there any justification for the procedure?

The reply must be in the affirmative. School executives the country over are today considering as never before the personal appearance of candidates, especially of candidates for high-school positions. On this ground more than any other personal interviews with candidates are becoming the invariable rule. School principals would not be truly masculine if they did not prefer an attractive-appearing, neat, trimly dressed, fresh, vivacious young woman to one whose qualifications are the direct opposite. They do exert such preference, because they know boys and girls prefer beauty to brains.

This last statement needs explanation. "Beauty" in woman is not mere doll-like prettiness; and, thank fortune, it is not synonymous with "youth." Beauty is all that rich and wholesome attractiveness which any woman of any age ought to know how to cultivate. On the other side "brains" is too often taken, as Mrs. Vosbrink in this one case seems to have interpreted it, to mean mere intellectual capability. We say that school men are sensible enough to know that brains ought to mean far more for any woman. In short, if a woman has brains enough to teach in a school, she ought to have brains enough to be an attractive woman personally. She could be if she had brains enough.

Of course life is hard for the ungifted. A homely, slatternly, stringy-haired, unbuttoned, unkempt creature has no place in the classroom. She hasn't brains; she isn't gifted; at any rate she isn't a model of the womanliness we want our girls to imitate and our boys to admire. She may have several degrees and dangle with a black string about her neck a Phi Beta Kappa key, but she has not womanly brains. Qualities of personal untidiness are consummate proof that she has not woman's supreme qualification, lovable, womanly attractiveness, best summed up in the term "wholesomeness." If a school executive employs such an individual, he is guilty of even a less excusable fault than the college executive who employs a bookworm, not a real man.

An Innovation in Supervised Study

Principal Carl H. Nielson of Vallejo, California, writes us of an interesting innovation in supervised study, having two quite distinct features. In the first of these the teacher meets individual pupils who have fallen behind in her classes; in the second she teaches the group as a whole how to study.

Of the seven daily periods each teacher is required to set aside one, known as "the deficiency period." Every pupil who has dropped behind must go to his instructor, whenever she directs, during this deficiency period. Moreover, these periods take precedence over other class meetings; in other words, if Boy A is behind in Algebra, he may have to leave an English class in order to attend the deficiency period of his algebra teacher. The confusion which might naturally be expected from such a plan, Mr. Nielson writes, is largely avoided by careful supervision by the office and by hearty co-operation on the part of all the teachers.

The second distinctive feature of the Vallejo system is the opportunity every teacher has to teach her classes as groups how to study. This is accomplished by adding one period to the school day. The school opens at 8:15 instead of 9:00. The first 45 minutes throughout the entire building are directed study-periods, managed as follows:

> At 8:15 the pupils go on Monday morning to their respective rooms for the regular 9:00 o'clock recitations. There they receive instructions as to the proper method to pursue in studying the lessons in these particular subjects for the next two weeks. On Tuesday at 8:15 (the regular supervised study-period) the pupils having recitations during the second period in the morning are given instructions as to the best manner of preparing their lessons in these subjects for the next two weeks. On Wednesday the pupils at 8:15 are instructed in the best way to study the subjects of the third period for the two ensuing weeks. This process is continued through the entire program of seven recitation periods, and is repeated each fortnight.

Our correspondent adds two points of interest: First, the difficulty giving most trouble is the inevitable tendency to make the supervised study-period nothing but one more recitation in the same subject. This of course defeats the purpose of the experiment; the Vallejo teachers are gradually learning how to avoid the natural inclination. The second point is too long to quote in full. It consists of a startling set of figures showing the improved standing of the entire student body under the twofold plan, which enables each teacher both to reach personally all her weak pupils, and definitely to guide the study of her classes as units.

A New Field for the College Man

The opening of the college year is always attended with uncertainties. The year 1914–15 brought a surprise quite unlooked for by the faculties of many institutions. There was a falling off in the German classes varying from 20 to 50 per cent, and a similar shrinkage in the French department, though in the case of the latter the decrease was not so marked; on the other hand, in many instances the classes in Spanish increased almost 100 per cent. Evidently the student body was looking toward an Eldorado in South America.

Quite in line with this tendency is the report of Mr. F. C. Schwedtman, director of efficiency in the National Bank of New York City, concerning "An Experiment in Practical Commercial Education in the National City Bank," published in the December issue of the *Journal of the National Education Association*. The bank, under normal conditions, employs at its home institution about one hundred clerks. Since the outbreak of the war branch offices of the National City Bank of New York have been opened in foreign countries so rapidly that the bank is no longer able to depend upon the advancement of experienced and trusted employees. The outcome should be larger opportunities for experienced bankers in small towns; but in this crisis, it is interesting to note that the call has come for the college man. The reasons for this discrimination are very significant in the educational as well as in the business world. In speaking of his confidence in the experiment made with college men a year ago, Mr. Schwedtman says:

> It is true that most of these young men could hardly add a column of figures, that their writing was merely a scribble, and that their knowledge of banking was decidedly lacking. Their enthusiasm and keen young minds, however, overcame obstacles imposed by lack of practical training, and their fine college-instilled spirit of sportsmanship and their splendid team work not only established the reputation of the college man, but brought into the bank an atmosphere that is of material aid in improving the spirit of the institution.

Encouraged by the success of the experiment made last year, the bank has selected forty young men from sixteen universities for further business enterprise. With these new recruits there has been inaugurated a plan which, if successful, will tend toward closer co-operation between the university and business, a closer connection between the theoretical and practical training of young men for commerce—both domestic and international.

The bank hopes to establish fellowships in conjunction with various universities and colleges, whereby students who have completed one year of practical work in the bank, together with certain academic courses, shall be granted one year's credit toward the degree for which they are candidates.

Naturally enough the National City Bank wants selected men. Yet the scheme is sufficiently flexible to allow candidates to go into the work as early as the Sophomore year or during the summer vacation in order to test their fitness for the vocation. The plan is a wise one. Whether the universities continue to offer "a gentleman's education" or not, there is no gainsaying the fact that the commercial and industrial growth of our country depends upon our educated men.

E. M. G.

A Survey of the Higher Educational Institutions of Iowa

In the first of an important series of state educational surveys made by the Federal Bureau of Education, a new principle in higher educational administration is laid down which it is believed will be of real significance to the future of education in the states. This is the so-called principle of "major and service lines." It is offered as a solution to the problem of duplication of professional courses by two or more state institutions of higher education in Iowa and a number of other states.

By the principle of "major and service lines," as described in the bulletin just issued on *Higher Educational Institutions of Iowa*, each state educational institution has assigned to it certain "major" fields which it may develop to the fullest extent. "Service" lines are such subordinate subjects as are essential to the proper cultivation of a "major" line. For example, agriculture at the Iowa State College of Agriculture and Mechanic Arts is a "major" line, and English a "service" line. On the other hand, English is described as a "major" line at the State University and a "service" line at the State College. On this principle no state would attempt to maintain two or more extensive and elaborate educational plants doing the same type of special work in the same field, and no institution would duplicate the work of another except to the extent that such work is necessary to the main task of the college.

The government's survey of the Iowa state higher educational institutions was made at the urgent request of the Iowa State Board of Education for expert information in meeting the problems that arose in appropriating the necessary money for the institutions of the state.

BOOK REVIEWS

The Prometheus Bound of Aeschylus. By MARION CLYDE WEIR. New York: Century Co., 1916. 12mo.

This is a conventional, but convenient and readable, translation in blank verse, with the lyrical passages done into English rhymes. To enter the lists against so consummate a poet as Mrs. Browning is very bold, and the issue scarcely doubtful. With Mrs. Browning away, perhaps higher words of praise might be found.

In testing a translation of the *Prometheus* one inclines instinctively to turn first to the Titan's sonorous invocation of nature at the moment when his tormentors have left him bound to the desolate rock. A comparison of renderings is not reassuring. One line of Mr. Weir's set beside the corresponding verse of Mrs. Browning is enough to show that he has not tallied an advance. For Mrs. Browning's

> O holy Aether, and swift-winged winds,

Mr. Weir has

> O divine Ether and swift-winged winds.

This is no gain. Indeed, the change from "holy" to "divine" vitiates both rhythm and tone; "holy" seems almost inevitable, while "Ether" is an anodyne.

Of course, the juxtaposition of single verses is unfair. Suppose we compare Mr. Weir's translation of the throbbing anapests which follow Prometheus' invocation,

> Behold with what wickedness ground into dust
> Through the oncoming centuries wrestle I must
> Down the myriad years,

with Mrs. Browning's vigorous

> Behold, with throe on throe,
> How, wasted by this woe,
> I wrestle down the myriad years of time!

Not only is the former rendering more commonplace, but it is less accurate than the latter. To speak of nothing else, Mrs. Browning's "down" is adverbial; Mr. Weir's preposition is weaker, as well as farther from the Greek. Searching with the best of predispositions, the present reviewer fails to find a passage of Mr. Weir's which reveals a poetic grandeur comparable with any one of many in Mrs. Browning, or, say, of Byron's paraphrase of the second choral ode.

In the main the versification is smooth, but resolutions and hypercatalectic verses are too frequent for entire comfort. Such lines as,

> But they returned bringing back oracles,

and,

> Hearing me through still further wilt thou marvel,

must be styled careless, if not worse. Whether the flavor of Greek lyric can be reproduced in rhymed verse may be a matter of opinion and taste, but rhyme must be careful. Little short of reprehensible is a rhyme like this:

> Through others' wild resentment thus brought low;
> And who of all the ill-starred race is so
> Wretched as I?

The question, however, which the reader of the original must answer is this: "Do you feel that this translation is a faithful transcript?" In this instance the reply must be in the negative. But, for that matter, neither is Mrs. Browning's satisfactory. She is complex; Aeschylus is simple and straightforward. She has a grand style; Aeschylus is far grander. Truth is, he cannot be reproduced, and one is not to be blamed for having failed to accomplish the impossible.

Mr. Weir remarks in his preface that he had hoped to develop for the choruses "a form that would closely approximate the rhythms of the original, but after experimenting gave up the design." One might wish that he had persevered in the attempt. Arnold has shown that the only feasible method of translating Homer is to reproduce the hexameters. Success with the tragedy, in the opinion of the reviewer, must eschew blank verse and rhyme, and proceed along the same line as is suggested by Arnold. Mr. Weir expresses the justifiable conviction "that most of the complicated Greek meters and rhythms could be reproduced in English if a man of leisure and learning should undertake the task with sufficient diligence and enthusiasm." All that needs to be added to these four qualities is "genius."

A poem's baldest meaning may be carried over even by a prose translation, but not the subtle flavor which is the real essence. This inheres partly in the form. A translator must be content either to have constructed another genuine poem on the same theme, like Pope's *Iliad* or Browning's *Alcestis*, or else he must find some means of taking over both sense and form. The task seems hopeless, but the experiment would be worth while. An attempt to do the impossible is always inspiring, even though it be superogatory.

C. H. WELLER

STATE UNIVERSITY OF IOWA

Applied Latin: A Course for Beginners. By W. H. FREEMAN. Milton, Pa.: Weidenhamer & Co., 1916. Pp. 344+xliii.

For more than a quarter of a century most makers of first Latin books have consciously or unconsciously followed the standard set by such books as Collar and Daniell's *Beginner's Book*, published in 1886. The method followed

in these books can be described as the piecemeal grammar-translation method, the plan being to have the pupil translate, beginning at the first lesson, Latin-to-English and English-to-Latin sentences, based on a limited set of forms and vocabulary. The fifty or so "First Books" that have followed this model have varied from it chiefly in the selection of paradigms, and in the size of the pieces and the order in which they are administered. Of course each new text has had its "special features" which its author had found helpful in his own teaching and which made it seem worth while for him to add one more to the long list of available texts. There have been some authors who have reverted to an earlier type of grammar-translation book in which the emphasis is placed on *grammar*, and in which all of the more important paradigms are to be summarized before the pupil is allowed to read or write any Latin. Such a book is *Bennett's Foundations*, published in 1898. On the other hand, there have appeared more recently the direct-method texts, such as Paine & Wainwaring's *Primus Annus*, and Chickering and Hoadley's *Beginners' Latin*, which emphasize the understanding of oral and written Latin without translation, and forbid the rote-learning of isolated forms and abstract rules of syntax.

These direct-method texts, and to some extent the piecemeal texts referred to above, represent the point of view that Latin is to be taught as a *language*. The value of Latin as an aid to English and other subjects in the curriculum is taken for granted, and considered only a sort of by-product, if not altogether neglected, in the training of the pupil to read and write Latin.

The author of *Applied Latin* is convinced that present beginners' books do not meet the needs especially of the great number of students who study Latin only two or three years. He has therefore arranged the subject-matter in *Applied Latin* with a view partly to the acquisition of a sound foundation in Latin, partly to a "correlation of Latin with things modern and vital." The author frankly says that translation from Latin to English and from English to Latin is to be a secondary matter compared with awakening a realization of the importance of a knowledge of Latin as an aid to the study of English. If one may judge by the order of presentation and prominence given in the text, translation is not even of secondary importance, but must yield to a study of English words, their spelling, and their derivation from Latin; English grammar; Latin vocabulary (selected for its importance in furnishing root-words in English); Latin forms and rules of syntax; drill exercises on case-meaning or verb-forms in isolated Latin words; and "inter-chapter" digressions on ancient geography, history, and customs. Each of these topics is treated at greater or less length before there is offered any matter for translation. The first complete Latin sentences to be translated occur on p. 46, and these are little more than drill exercises on forms of the verb, which important part of speech is first taken up at this point. The noun, the preposition, and the adjective have been previously treated, but without so much as an "est" to make sentences possible. As a matter of fact, translation other than

that of isolated sentences to illustrate the rules or forms being presented is not found until one reaches p. 281, from which point to the end of the book there are occasional selections, beginning with the story of Creation. On pp. 310 to 315, at the very end, are given without notes the first eight chapters of Caesar's *Gallic War*.

As a substitute for translation in earlier work, the author uses such a doubtful device as the following, first found on p. 15: "In the following sentences repeat the Latin word whenever you see its English meaning: 1. My *daughter* walked through the *forest*. 2. The *road* takes an *hour*." Similar sentences follow calling for Latin nouns already known, but involving case relations as yet unknown to the pupil, inasmuch as only the nominative case has been supplied in the Latin word lists.

Another plan, less culpable, but hardly deserving the name "translation," is the following, found on p. 27, in connection with the author's treatment of the preposition: "Translate these sentences, noting the use of the preposition and the cases which follow them: 1. We advanced *ad fossam*. 2. They fled *ante fugam*," Similar English sentences follow containing Latin prepositional phrases.

That the author has considerable difficulty with the concept "translate" is illustrated by this naïve statement found on p. 25, where he is discussing the difficulties which confronted the young Roman in understanding his own language: "For instance, in reading, the cases spelled with exactly the same letters were very hard for the ordinary Roman boy to *translate*. Some cases, like the ablative, had more than one possible *translation*." [The italics are the reviewer's.]

From the foregoing quotations and examples, it will be seen that the author's point of view is directly opposite to the commonly accepted view that the reading, translating, and writing of Latin should accompany, if not precede, drill on forms or vocabulary. His conception of the chief aims of Latin study will doubtless meet with acceptance among the advocates of vocational Latin, for whom *Applied Latin* might prove a valuable text. The classified lists of nearly a thousand Latin derivatives used in modern school and business life will be found especially helpful. Considering the great stress placed on the use of Latin as etymological material, one wonders why the author has not advocated the use of the English pronunciation exclusively, or at least offered it side by side with the Roman pronunciation adopted. The rules for the English pronunciation of Latin cannot be taken for granted.

In terminology the author is unaffected by the report of the Joint Committee on Grammatical Nomenclature. Both the terms and the definitions employed in dealing with the facts of English as well as of Latin grammar are often inaccurate or inadequate. Examples are: "Simple sentences contain but *one subject* and *one predicate*" (p. 14). "Ordinarily *I*, *you*, *we* are included in the forms of the Latin verb, but when the subject of the sentence is *he*, *she*, or *it*, this subject is regularly expressed; as *poeta laudat*, *he*, namely, *the poet*,

praises" (p. 45). "English sentences follow the *natural* word order" (p. 52). "In (Latin) dependent clauses the verb is usually a form not of the indicative but of the subjunctive mood" (p. 109). "Since the subjunctive mood lacks the *firmness*, *frankness*, and *assurance* of the indicative, it is naturally used in most dependent (weaker) clauses" (p. 161). Elsewhere (p. 44) he speaks of the subjunctive as the mood, not of facts, but rather of possibilities. He seems unaware of the very common force of the subjunctive both in English and in Latin which most modern Latin grammars call "volitive." His general advice to the pupil is to ignore the subjunctive. He says on p. 162: "The subjunctive in English regularly employs the auxiliary verbs (*may*, *might*, etc.), but in Latin they are used in the translation of purpose clauses and of one or two conditional clauses *only*. Unless specially directed to the contrary, translate the present subjunctive in Latin like the present indicative, the imperfect subjunctive like the imperfect indicative, etc."

The book presents a rather monotonous style of typography. There is no break for "Lessons," the matter being presented continuously by sections which are numbered consecutively. There is no variation in the size of the type used except in the giving of word lists, paradigms, or exercises for drill.

There are two full-page illustrations of scenes from modern Rome, and four full-page maps to be used in connection with the eighteen "inter-chapter" digressions. Two of these maps are unfortunately misplaced in the edition which I have before me.

W. L. CARR

SCHOOL OF EDUCATION
UNIVERSITY OF CHICAGO

Fundamentals of French: A Combination of the Direct and Grammar Methods. By FRANCIS R. ANGUS. Henry Holt & Co., 1916. Pp. 180.

The text consists of an eighteen-page introduction devoted to pronunciation. Part I contains thirty-four lessons, covering sufficient material for a very full first-year course. One may judge of the practical character of the vocabulary from the titles of the lessons; i.e., "Vêtements," "Parties du Corps," "La Famille," "Sports," "La Maison," "L'heure," "Au restaurant," etc. The last lessons consist of selections from *Le petit chaperon rouge*, *Cendrillon noiraud*, *Le Tour du Monde*, and *Les Trois Mousquetaires*. Part II contains a grammar résumé, vocabulary, etc.

The excellent introduction furnishes the beginner with ample and valuable information regarding French pronunciation. The unusual clearness and thoroughness of the exposition is to be praised; but unfortunately phonetic considerations cease here, for from this point on there is not a word regarding pronunciation, not a phonetic symbol, nothing to make practical the theory so excellently begun.

As to the method, it is by far the most skilful combination of the direct and grammar methods which has come under our observation. In this text the direct method has the upper hand, in striking contrast with some recent texts in which the devices of the direct method were used as a sugar-coating for the grammar. The work demonstrated by gestures, objects, and the like advances by question and answer, thereby promoting vivacity. The various phases of the student's life are covered. From this vocabulary emerges naturally and inductively what grammar is necessary. The grammatical facts are stated concisely at the bottom of each page in small type.

There seems to be insufficient preparation for written work, but the skilful teacher can easily supply this deficiency. Though the material may have been handled in too mature a way—experience will tell—yet there is no doubt that this book represents a valuable contribution to our progress toward the inevitable ascendency of the direct method.

ARTHUR G. BOVÉE

UNIVERSITY OF CHICAGO HIGH SCHOOL

Plane Geometry. By EDITH LONG and W. C. BRENHE. New York: Century Co., 1916. Pp. 273. $1.00.

The book begins with a short history of the development of geometry which should prove helpful to the student in grasping the practical and logical nature of the subject. This is followed by the excellent method of introducing geometric forms, i.e., the use of paper models.

Instead of making an entire chapter of construction problems, the authors have arranged the material so as to have the construction follow the theorems upon which the proof of the construction is based. However, the use of the protractor, one of which is inclosed in each book, is introduced in the beginning of the text, great emphasis being placed on careful drawings, which will assist the pupil in a logical apprehension of the subject.

A large portion of one chapter is devoted to the development of the method and form of the proof of theorems and exercises, all of which are brought out in clear explanations and analysis. These methods are finally used by the pupil in completing the proofs of the theorems and exercises when only the statements are given. The summary and questions at the end of each chapter give the pupil a frequent review of all the facts in the preceding chapter. This is another commendable feature of the book.

The union with algebra is arranged in carefully planned algebraic problems which require geometric figures and a knowledge of geometric facts. The relation to trigonometry is shown by the introduction of trigonometric functions in the chapter on ratio and proportion. Under the heading "Loci" is found co-ordinate geometry or graphical construction, which is another step toward the much-desired correlated mathematics.

The discussion of the incommensurable cases and the theory of limits is placed at the end of the last chapter, to be taken up at particular points or left till the end of the course.

ABIGAIL L. MCRAITH

Principles and Methods of Teaching. BY JAMES WELTON. Baltimore, Md.: Warwick & York, Inc. Pp. 677. $1.65.

Principles and Methods of Teaching, by James Welton, professor of education in the University of Leeds, is a thoroughly scientific presentation of the educational problems of the primary and secondary schools. No theory is advanced which has not had the advantage of expert opinion. Professor Welton explains in his preface that he has not trusted to his own feeling in subjects which he himself has not taught. For instance, the chapter on natural history was written by Mr. C. E. Moss, keeper of the herbarium at the University of Cambridge; and that on needlework, by Miss E. L. Melville, mistress of method in the Leeds City Training College. In all of the chapters the problems are broadly considered; no attempt is made to give detailed recipes for attaining specific results.

The general function of teaching, material of instruction, and form of instruction are discussed in their various psychological aspects in Part I. Part II deals with the specific application of educational principles to the subjects usually taught in the grades and in the high school.

As a whole the work is thoroughly sane. It is simple and direct in style and concrete in analysis and application. To each chapter is appended a brief bibliography.

BOOK-NOTES

(Detailed discussions of some of the following books will appear later.)

ABBOTT, E., and BRECKINRIDGE, S. P. *Truancy and Non-Attendance in the Chicago Schools.* Chicago: The University of Chicago Press, 1917. Pp. 472. $2.00.

A study of the social aspects of the compulsory-education and child-labor legislation of Illinois.

ALLEN, P. S. *An den Ufern des Rheins: Vom Bodensee bis zu den Niederlanden.* New York: Henry Holt & Co., 1917. Pp. 258.

The book is unique in material and treatment.

Annual Report of the Secretary of the Navy for the Fiscal Year. Washington: Government Printing Office, 1916. Pp. 143.

Annual Reports of the President and Other Officers of Purdue University for Year Ending June 30, 1916.

Contains a carefully organized list of Purdue publications for year 1916.

ARCHBOLD, MAURICE J. *A Laboratory Course in Practical Electricity for Vocational Schools and Shop Classes.* New York: Macmillan, 1916. Pp. 209.

This is a book very well adapted to the purpose for which it is intended. It presents the laboratory side of electricity in a practical way, bringing together theory and practical application in an admirable manner.

BAKER, E. K. (Compiler). *Short Stories and Selections.* New York: Macmillan, 1916. Pp. 263. $0.25.

The selections are fresh and interesting. Excellent models for narrative and descriptive themes.

BASSETT, LEE E. A Handbook of Oral Reading. Boston: Houghton Mifflin Co., 1917. Pp. 353.

Part 1 treats of clearness and meaning; Part 2, with Impressiveness; and Part 3, with ease and correctness. The chapter to teachers has many helpful suggestions for recitation and assignment.

BRADSHAW, G., and BURSTALL, SARA A. *The High School Cookery Book.* New York: Longmans, Green, & Co., 1916. Pp. 263. $0.60.

A scientific treatment of kitchen facilities and foodstuffs.

BURBACKER, A. R. (Editor). *Shakespeare's King Richard III.* New York: Macmillan, 1916. Pp. 200.

CHAMBERLAIN, JAMES F., and CHAMBERLAIN, A. H. *Oceania: A Supplementary Geography.* New York: Macmillan, 1916. Pp. 160. $0.55.

ECKLES, C. D., and WARREN, G. F. *Dairy Farming.* New York: Macmillan, 1916. Pp. 309. $1.00.

The book is profusely illustrated. It is intended for general reading as well as for use in the college classroom.

Educational Directory. Department of the Interior, Bureau of Education, Bulletin, No. 43, 1916.

Educational Survey of Wyoming. Department of the Interior, Bureau of Education, Bulletin No. 29, 1916.

FINNEY, H. A., and BROWN, J. C. *Modern Business Arithmetic.* New York: Henry Holt & Co., 1916. Pp. 488. $1.10.

The material and the method used in the book are based upon business conditions and practices. Among the topics included are contract purchases, instalment payments, comparative statistics to promote buying and selling efficiency, and finding the profit and loss on each sale.

FITI, EMERSON DAVID. *History of the United States.* New York: Henry Holt & Co., 1916. Pp. 575.

The text is profusely supplied with illustrations and maps.

GUYER, MICHAEL F. *Animal Micrology: Practical Exercises in Zoölogical Micro-Technique.* Revised Edition. Chicago: The University of Chicago Press, 1917. Pp. 289. $2.00.

HEWINS, N. P. *The Doctrine of Formal Discipline in the Light of Experimental Investigation.* Baltimore: Warwick & York, Inc., 1916. Pp. 100. $1.25.

HOFSTEN, ERNEST GODFREY. *The Earlier Essays of James Russell Lowell.* New York: Macmillan, 1916. Pp. 247. $0.25.

HOLLISTER, HORACE A. *The Planning and Construction of High School Buildings.* University of Illinois.

Issued from the High School Visitors' Office, University of Illinois, for the guidance of school boards and those interested in high-school construction.

HOPKINS, ANNETTE B. *The Knight of the Lion.* "Every Child's Series." New York: Macmillan, 1916. Pp. 152. $0.40.

In adapting this romance by Cretian de Troyes, Miss Hopkins has omitted unsuitable passages and condensed or summarized passages where the repetition might give only the impression of tediousness. The book is a pleasing addition to Arthurian legends arranged for young children.

HOUGHTON, H. G. *The Elements of Public Speaking.* Boston: Ginn & Co., 1916. Pp. 327.

A scientific study which aims to satisfy practical needs.

In a Major Key: Music in the Minneapolis Schools. City of Minneapolis, Monograph No. 5, Series of 1916–17.

JOHNSTON, C. H. *The Modern High School: Its Administration and Extension.* New York: Scribner, 1916. Pp. 848.

The book contains examples of significant movements with interpretation by the foremost American educators.

LAW, FREDERICK HAUK (Editor). *Robert Southey's Life of Nelson.* New York: Macmillan, 1917. Pp. 312. $0.25.

LEONARD, S. A. *English Composition as a Social Problem.* Boston: Houghton Mifflin Co., 1917. Pp. 200.

The book analyzes and motivates composition in the grades.

MILLER, E. L. *Practical English Composition. Book IV.* Boston: Houghton Mifflin Co., 1917. Pp. 132.

A fourth-year text. The book offers a brief review of description and narration, but lays most stress upon argumentation. The final chapter, on "Speeches for Special Occasions," contains helpful suggestions for graduation week.

Pencil and Brush: Art in the Minneapolis Schools. City of Minneapolis, Monograph No. 6, Series of 1916–17.

An inspiring and suggestive monograph.

PERRY, C. A. *Community Center Activities.* New York City: Department of Recreation, Russell Sage Foundation.

Suggestive book for parent-teacher associations.

POTTS, R. M. *Insurance Report of the Insurance Superintendent of the State of Illinois.* Part III. 1916. Pp. 431.

PROKOSCH, E., and PURIN, C. M. *Deutscher Lehrgang.* New York: Henry Holt & Co., 1916. Pp. 238.

RANKIN, THOMAS E., and AIKON, W. M. *English Literature.* New York: Macmillan, 1917. Pp. 425. $1.00.

The book is conventional in treatment of subject-matter and illustration. The final chapter summarizes the types of literature, with special stress upon the short story. Bibliography is scholarly and yet quite within the range of high-school students.

Report of an Inquiry into the Administration and Support of the Colorado School System. Department of the Interior, Bureau of Education, Bulletin No. 5, 1917.

SIEFF, MARK. *Manual of Russian Commercial Correspondence.* New York: E. P. Dutton & Co., 1916. Pp. 232.

The book pays special attention to Russian business phraseology. An extensive index of commercial terms and phrases both Russian and English has been appended. The vocabulary is given by specific reference to letters in which the desired word or phrase is employed.

SMITH, ALEX. *Introduction to Inorganic Chemistry.* Third edition. New York: Century Co., 1916. Pp. 925.

SMITH, H. J. *Letters: A Brief Course in Business-Letter Writing.* Milwaukee Public School of Trades for Boys, 1916. Pp. 24. $0.10.

SMITH, H. J. *English for Boys.* Milwaukee Public School of Trades for Boys, 1916. Pp. 16. $0.05.